

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2002-197147

(43)Date of publication of application : 12.07.2002

(51)Int.Cl.

G06F 17/60
B09B 3/00
B09B 5/00

(21)Application number : 2000-398977

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(22)Date of filing : 27.12.2000

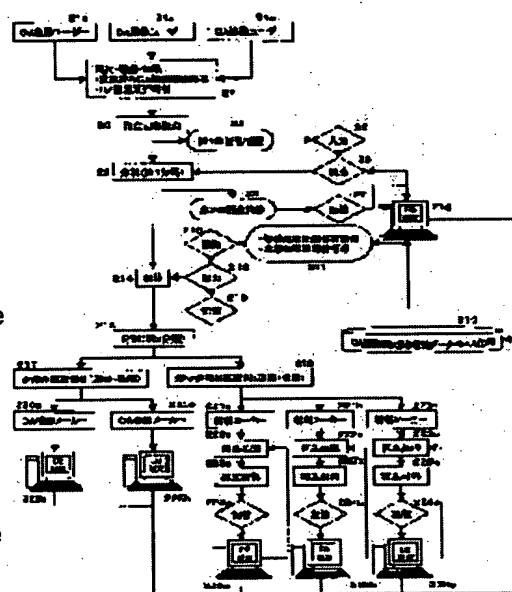
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(54) RECYCLING METHOD AND DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To efficiently recycle an apparatus at a low cost and to improve a recycling ratio of the apparatus.

SOLUTION: This recycling device has an inputting means for reading a first product information attached to the apparatus, a storing means for storing the apparatus checking and disassembling information data base of the information for checking, disassembling and separating the apparatus corresponding to the first product information attached to the apparatus, and a checking means for checking the apparatus corresponding to the first product information of the apparatus obtained by the inputting means, and the apparatus collecting and disassembling information data base.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or

application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's
decision of rejection]

[Date of requesting appeal against examiner's
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[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] It has the following and is characterized by share-izing said device recovery dismantling information data base through a network between said assignment recovery base, said material maker, and said equipment manufacturer. A production process which carries said device which is the recycle method which used devices are collected and recycles components and a material of said device, and was generated in the (a) appointed area at an assignment recovery base, and is accumulated, (b) An input means to read the 1st product information that said assignment recovery base is added to said device, said 1st product information added to said device, and collating of the corresponding device concerned, It has a storage means to memorize a device recovery dismantling information data base of information for dissolving and classifying. A production process which collates the device concerned corresponding to said 1st product information on said device obtained with said input means at said assignment recovery base, and said device recovery dismantling information data base, (c) Based on collating with said 1st product information on said device, and said device recovery dismantling information data base, the device concerned is classified to two or more 1st classifications. A production process which memorizes judgment information on the device concerned in said device recovery dismantling information data base as 2nd product information, (d) Said assignment recovery base recognizes dismantling processing sheathing member information on the device concerned, and processing [in which it does not dissolve] member information based on said 1st product information or said device recovery dismantling information data base in each of said device classified to said two or more 1st classifications. A production process which has an output means to display said recognition result, and memorizes said dismantling processing sheathing member information and said processing [in which it does not dissolve] member information in said device recovery dismantling information data base, (e) A production process which disassembles the device concerned based on a result shown by said output means to said dismantling processing sheathing member and said processing [in which it does not dissolve] member, and classifies said dismantling processing sheathing member to two or more 2nd classifications, (f) An each processing sheathing member of said dismantling when it classified to said two or more 2nd classifications, and said processing [in which it does not dissolve] member. A production process which carries said dismantling processing sheathing member to each material maker, carries said processing [in which it does not dissolve] member in each of said equipment manufacturer, and is accumulated (g) A production process which processes said accumulated dismantling processing sheathing member into a rework by art based on said device recovery dismantling information data base, and memorizes information on said rework in said device recovery dismantling information data base

[Claim 2] A recycle method according to claim 1 characterized by allotting an information record means to said device.

[Claim 3] Said junction ground is the recycle method according to claim 1 or 2 which has at least one junction ground between said appointed area and said assignment recovery base in a production process which carries said device generated in said appointed area at said assignment recovery base, and is accumulate, and is characterize by to connect with said device recovery dismantling information data

base further through a network .

[Claim 4] Said device recovery dismantling information data base is connected through a network with a device vendor. Said device vendor collects used devices currently installed in a sale place at the time of a new device sale. Said used device collected from information acquired from said device recovery dismantling information data base is carried on said assignment recovery base or a junction background. A recycle method according to claim 1 to 3 characterized by being accumulated, or carrying and piling up specified said assignment recovery base or a junction ground in said appointed area where said sale place belongs.

[Claim 5] As for said device recovery dismantling information data base, an art of said dismantling processing sheathing member is memorized. At least And a manufacture name of said device, a name of a product, form of a product, the date of manufacture, A part number, dismantling processing sheathing member information on a product and processing [in which it does not dissolve] member information, the quality of the material of said dismantling processing sheathing member, A recycle method according to claim 1 to 4 characterized by memorizing and constituting one information in a material maker of said dismantling processing sheathing member, said dismantling processing sheathing member name, and said dismantling processing sheathing member number.

[Claim 6] Said 1st product information is the recycle method according to claim 1 to 5 characterized by consisting of one information in a manufacture name of said device, a name of a product, form of a product, the date of manufacture, a part number, dismantling processing sheathing section information material of a product, and processing [in which it does not dissolve] member information at least.

[Claim 7] A recycle method according to claim 1 to 6 characterized by choosing a classification method of said 1st classification at least from one of a manufacture name of said device, a name of a product, and form of a product.

[Claim 8] Said 2nd product information is the recycle method according to claim 1 to 7 characterized by being chosen out of one of a manufacture name of said device, a name of a product, and form of a product at least.

[Claim 9] Said dismantling processing sheathing member information is the recycle method according to claim 1 to 8 characterized by consisting of one information in the quality of the material of said dismantling processing sheathing member, a material maker, said dismantling processing sheathing member name, said dismantling processing sheathing member number, and quantity at least.

[Claim 10] A recycle method according to claim 1 to 9 characterized by choosing a classification method of said 2nd classification from one of the quality of the material and material makers at least.

[Claim 11] When two or more formation of said appointed area is carried out, an each recovery base of said assignment exists in said two or more appointed area. An each recovery dismantling information data base of said device is connected through a network. A recycle method according to claim 1 to 10 characterized by share-izing an each recovery dismantling information data base of said device through a network between said assignment recovery base, said material maker, and said equipment manufacturer respectively.

[Claim 12] Said device recovery dismantling information data base is the recycle method according to claim 1 to 11 characterized by consisting of 2 data bases with which a device dismantling information data base and a device recovery information data base became independent.

[Claim 13] Said device is the recycle method according to claim 1 to 12 characterized by consisting of said device sheathing members which consist of the quality of the material of assignment for which it opted among said two or more equipment manufacturers.

[Claim 14] A recycle method according to claim 1 to 13 characterized by constituting costs generated within said production process, and performing accounting and collection of said costs in said device recovery dismantling information data base through a network where it comes to connect said device recovery dismantling information data base.

[Claim 15] A production process which is the method of collecting and recycling a used device made from two or more equipment manufacturers, collects said devices generated in the (a) appointed area, carries said device at an assignment recovery base, and is accumulated, (b) Collating of an input means

to read product information by which said assignment recovery base is added to said device, said product information added to said device, and said corresponding device, It has an output means to display a recycle information data base used as information for dissolving and classifying. A production process which collates said device corresponding to said product information and said recycle information data base of said device obtained with said input means at said assignment recovery base, and outputs the result, (c) Based on a collating result of said product information on said outputted device, and said recycle information data base, said device is classified to two or more 1st classifications. A production process memorized in said recycle information data base by making judgment information on said device into the 1st judgment result, (d) Based on the 1st dismantling information which is in said product information or said recycle information data base in each about said device classified to said two or more 1st classifications, recycle information and reuse information on a sheathing member of said device, the case section, said sheathing member, and the case section are recognized. Based on a production process which outputs the result, and a result by which (e) output was carried out, said sheathing member and said case section of said device are disassembled. Said disassembled device is classified to two or more 2nd classifications which contain one of a member for the 1st recycle, and members for the 1st reuse at least. Furthermore, it sets to a production process memorized in said recycle information data base by making judgment information on said disassembled device into the 2nd judgment result, and said 2nd classification of (f) plurality. Said member for the 1st recycle Members for un-[1st reuse / of the 1st recycle] other than said member for the 1st reuse are based on the 2nd dismantling information in said product information or said recycle information data base. And a dismantling art of said member for un-[1st reuse / of the 1st recycle] And a production process which recognizes recycle information and reuse information on solution soma material, and outputs the result, (g) Based on an outputted result, said member for un-[1st reuse / of the 1st recycle] is disassembled. At least said disassembled member for un-[1st reuse / of the 1st recycle] A member for the 2nd recycle, A production process which classifies to two or more 3rd classifications containing one of members for the 2nd reuse, and is memorized in said recycle information data base by making into the 3rd judgment result judgment information on said member for un-[1st reuse / of the 1st recycle] disassembled further, (h) In said member for the 1st recycle contained in said 2nd classification and said two or more 3rd classifications, and said member for the 2nd recycle [two or more] Carry each member for recycle to each material maker, and it is accumulated. A production process which processes an accumulated each object member of said recycle into a rework by art based on said recycle information data base, and memorizes information on said obtained rework in said recycle information data base, (i) In said member for the 1st reuse contained in said 2nd classification and said two or more 3rd classifications, and said member for the 2nd reuse [two or more] Each member for reuse is inspected by method based on said recycle information data base. Said inspection result is stored in said recycle information data base. Further After said inspection, Carry each member for reuse to each equipment manufacturer, and it is accumulated, and each accumulated member for reuse is processed and inspected by method based on said recycle information data base. It has a production process which obtains playback components and a playback product and memorizes information on said obtained playback components and aforementioned playback product in said recycle information data base. A recycle method characterized by share-izing said recycle information data base through a network between said assignment recovery base, said material maker, and said equipment manufacturer.

[Claim 16] A recycle method according to claim 15 characterized by allotting an information record means to said device.

[Claim 17] Said junction ground is the recycle method according to claim 15 or 16 which said appointed area has at least one junction ground between a recovery point of said device , and said assignment recovery base in a production process which carries said device generated in said appointed area at said assignment recovery base , and is accumulate , and is characterize by to connect with said recycle information data base further through a network .

[Claim 18] Said recycle information data base is connected through a network with a device vendor. Said device vendor collects used devices currently installed in a sale place at the time of a new device

sale. Said used device collected from information acquired from said recycle information data base is carried on said assignment recovery base or said junction background. A recycle method according to claim 15 to 17 characterized by being accumulated, or carrying and piling up said specified assignment recovery base or said junction ground in said appointed area where said sale place belongs.

[Claim 19] In order to process members for un-[2nd reuse / of the 2nd recycle] other than said member for the 2nd recycle in said two or more 3rd classifications, and said member for the 2nd reuse Furthermore (j) Based on crushing / grinding judgment information which is in said product information or said recycle information data base about said member for un-[2nd reuse / of the 2nd recycle], a crushing / grinding method of said member for un-[2nd reuse / of the 2nd recycle], and recycle information and judgment information after crushing / grinding are recognized. It is based on a production process which outputs the result, and a result by which (k) output was carried out, and said member for un-[2nd reuse / of the 2nd recycle] is crushed and ground. Said member for un-[2nd reuse / of the 2nd recycle] crushed and ground is classified to two or more members for the 3rd recycle. Furthermore, it sets to a production process memorized in said recycle information data base by making into the 4th judgment result judgment information on said member for un-[2nd reuse / of the 2nd recycle] crushed and ground, and said member for the 3rd recycle of (l) plurality. Carry each member for recycle to each material maker, and it is accumulated. An accumulated each object member of said recycle is processed into a rework by art based on said recycle information data base. A recycle method according to claim 15 to 18 characterized by having with a production process which memorizes information on said obtained rework in said recycle information data base.

[Claim 20] Said assignment recovery base has an input means for inputting a condition of a solution soma of said device and said device into said recycle information data base. In a production process chosen at least from one of an input production process of said product information, a judgment production process of said 2nd classification, a judgment production process of said 3rd classification, and judgment production processes of said crushing and grinding A recycle method according to claim 15 to 19 characterized by inputting a condition of a solution soma of said device and said device into said recycle information data base.

[Claim 21] In said recycle information data base, at least Said product information, said 1st dismantling information, An art of said 2nd dismantling information and said member for the 1st recycle, an art of said member for the 2nd recycle, An art of said member for the 3rd recycle, an art of said member for the 1st reuse, A recycle method according to claim 15 to 20 characterized by memorizing or constituting an art, said crushing / grinding judgment information, said 1st judgment result, said 2nd judgment result, said 3rd judgment result, and said 4th judgment result of said member for the 2nd reuse.

[Claim 22] Said product information is the recycle method according to claim 15 to 21 characterized by memorizing one information chosen from a name of said equipment manufacturer, a name of said device product, form and a model of said device product, the date of manufacture of said device, said device part number, use hysteresis information on said device, maintenance information on said device, and components information on said device at least.

[Claim 23] A classification of said 1st classification is a name of said equipment manufacturer, a name of said device product, and the recycle method according to claim 15 to 22 characterized by being the classification chosen from one of form and models of said device product at least.

[Claim 24] Said 1st judgment result is the recycle method according to claim 15 to 23 characterized by being chosen out of one of a name of said equipment manufacturer, a name of said device product, form and a model of said device product, and storage quantity of said device at least.

[Claim 25] In said device classified into a classification kind for reuse which a kind for reuse is specified as said 1st classification, and was specified by said product information or said recycle information data base Said device is processed and inspected by said product information or method based on said recycle information data base. A recycle method according to claim 15 to 24 characterized by using said device as a playback product and playback components, and memorizing information on said obtained playback product and aforementioned playback component in said recycle information data base.

[Claim 26] Said 1st dismantling information is equipped with a sheathing member of said device and

dismantling information on the case section, and recycle information and reuse information on said sheathing member and said case section. At least The quality of the material of said sheathing member and said case section, said sheathing member, and a name of a material maker of said case section, A recycle method according to claim 15 to 25 characterized by being chosen out of one of member numbers of a name of a name of an equipment manufacturer of said sheathing member and said case section, said sheathing member, and said case section, said sheathing member, and said case section.

[Claim 27] A recycle method according to claim 15 to 26 characterized by classifying a classification of said 2nd classification of said disassembled device into said member for the 1st recycle, said member for the 1st reuse, and said member for un-[1st reuse / of the 1st recycle] at least.

[Claim 28] A classification of said member for the 1st recycle is the recycle method according to claim 15 to 27 characterized by being chosen out of one of member numbers of a name of a name of a material maker of the quality of the material of each a member of said sheathing and, and said case section, each a member of said sheathing and, and said case section, each a member of said sheathing and, and said case section at least.

[Claim 29] A classification of said member for the 1st reuse is the recycle method according to claim 15 to 28 characterized by being chosen out of one of member numbers of a name of a name of an equipment manufacturer of the quality of the material of each a member of said sheathing and, and said case section, each a member of said sheathing and, and said case section, each a member of said sheathing and, and said case section at least.

[Claim 30] A classification of said member for un-[1st reuse / of the 1st recycle] is the recycle method according to claim 15 to 29 characterized by being chosen out of one of names of a name of an each a member for un-[1st reuse] of said 1st recycle, a member number of an each a member for un-[1st reuse] of said 1st recycle, and an equipment manufacturer of an each a member for un-[1st reuse] of said 1st recycle at least.

[Claim 31] Said 2nd judgment result is the recycle method according to claim 15 to 30 which consists of a result of said 2nd classification, or its part, and is characterized by being chosen out of one of storage quantity for every classification, and storage days at least.

[Claim 32] Said 2nd dismantling information Dismantling information on said member for un-[1st reuse / of the 1st recycle], It has recycle information on said member for the 2nd recycle, and reuse information on said member for the 2nd reuse. At least A name of said member for the 2nd recycle, the quality of the material of said member for the 2nd recycle, A name of a material maker of said member for the 2nd recycle, a member number of said member for the 2nd recycle, A recycle method according to claim 15 to 31 characterized by being chosen out of one of a name of said member for the 2nd reuse, the quality of the material of said member for the 2nd reuse, a name of an equipment manufacturer of said member for the 2nd reuse, and member numbers of said member for the 2nd reuse.

[Claim 33] A recycle method according to claim 15 to 32 characterized by classifying into said member for the 2nd recycle, said member for the 2nd reuse, and said member for un-[2nd reuse / of the 2nd recycle] at least a classification of said 3rd classification of said device which disassembled said member for un-[1st reuse / of the 1st recycle].

[Claim 34] A classification of said member for the 2nd recycle is the recycle method according to claim 15 to 33 characterized by being chosen out of one of a name of the quality of the material of an each object member of said 2nd recycle, and a material maker of an each object member of said 2nd recycle, a name of an each object member of said 2nd recycle, and member numbers of an each object member of said 2nd recycle at least.

[Claim 35] A classification of said member for the 2nd reuse is the recycle method according to claim 15 to 34 characterized by being chosen out of one of the quality of the material of an each object member of said 2nd reuse, a name of an equipment manufacturer of an each object member of said 2nd reuse, a name of an each object member of said 2nd reuse, and member numbers of an each object member of said 2nd reuse at least.

[Claim 36] A classification of said member for un-[2nd reuse / of the 2nd recycle] is the recycle

method according to claim 15 to 35 characterized by being chosen out of one of names of a name of an each a member for un-[2nd reuse] of said 2nd recycle, a member number of an each a member for un-[2nd reuse] of said 2nd recycle, and an equipment manufacturer of an each a member for un-[2nd reuse] of said 2nd recycle at least.

[Claim 37] Said 3rd judgment result is the recycle method according to claim 15 to 36 which consists of a result of said 3rd classification, or its part, and is characterized by being chosen out of one of storage quantity for every classification, and storage days at least.

[Claim 38] Said crushing / grinding judgment information Crushing / grinding information on said member for un-[2nd reuse / of the 2nd recycle], It has recycle information on said member for the 3rd recycle. At least A name of said member for the 3rd recycle, A recycle method according to claim 15 to 37 characterized by being chosen out of one of a name of the quality of the material of said member for the 3rd recycle, and a material maker of said member for the 3rd recycle, and member numbers of said member for the 3rd recycle.

[Claim 39] A recycle method according to claim 15 to 38 characterized by choosing a classification of said member for the 3rd recycle at least from one of a name of the quality of the material of an each object member of said 3rd recycle, and a material maker of an each object member of said 3rd recycle, a name of an each object member of said 3rd recycle, and member numbers of an each object member of said 3rd recycle.

[Claim 40] Said 4th judgment result is the recycle method according to claim 15 to 39 which consists of a classification result of said member for the 3rd recycle, or its part, and is characterized by being chosen out of one of storage quantity for every classification, and storage days at least.

[Claim 41] A recycle method according to claim 15 to 40 characterized by dealing with said same member for the 2nd recycle as a classification of said member for the 1st recycle as said member for the 1st recycle in said same member for the 2nd recycle as a classification of said member for the 1st recycle at the time of judgment of said 3rd classification by various classifications of said member for the 2nd recycle.

[Claim 42] In said member for the 3rd recycle same at various classifications of said member for the 3rd recycle as a classification of said member for the 1st recycle, or said member for the 2nd recycle Said same member for the 3rd recycle as a classification of said member for the 1st recycle, or said member for the 2nd recycle at the time of judgment of said member for the 3rd recycle as said member for the 1st recycle, or said member for the 2nd recycle A recycle method according to claim 15 to 41 characterized by dealing with it.

[Claim 43] A recycle method according to claim 15 to 42 characterized by said inspection result dealing with said poor member for the 1st reuse, and said member for the 2nd reuse as said member for un-[2nd reuse / of the 2nd recycle] in inspection before said member for the 1st reuse and said member for the 2nd reuse are carried by said equipment manufacturer.

[Claim 44] A recycle method according to claim 15 to 43 characterized by omitting inspection before said member for the 1st reuse and said member for the 2nd reuse are carried by said equipment manufacturer in said member for the 1st reuse, and said member for the 2nd reuse.

[Claim 45] A recycle method according to claim 15 to 44 characterized by for an each recovery base of said assignment to exist in said two or more appointed area when two or more formation of said appointed area is carried out, and to connect an each information data base of said recycle through a network, and to share-ize an each information data base of said recycle through a network between said assignment recovery base, said material maker, and said equipment manufacturer respectively.

[Claim 46] At least said recycle information data base A data base of said product information, A data base of said 1st dismantling information, a data base of said 2nd dismantling information, A data base of an art of said member for the 1st recycle, a data base of an art of said member for the 2nd recycle, A data base of an art of said member for the 3rd recycle, a data base of an art of said member for the 1st reuse, A data base of an art of said member for the 2nd reuse, a data base of said crushing / grinding judgment information, A data base of said 1st judgment result, a data base of said 2nd judgment result, A recycle method according to claim 15 to 45 characterized by consisting of independent 2 data bases

chosen from a data base of said 3rd judgment result, and a data base of said 4th judgment result.

[Claim 47] At least one member for recycle of said device is the recycle method according to claim 15 to 46 characterized by being the quality of the material of assignment for which it opted among said two or more equipment manufacturers.

[Claim 48] Said recycle information data base is the recycle method according to claim 15 to 47 characterized by being carried out within said recycle information data base by which costs generated within a recycle system of said device are memorized, constituted, calculated and programmed, and accounting and collection of said costs are connected with a network.

[Claim 49] Recycle equipment characterized by providing the following. An input means to read the 1st product information added to a device A storage means to memorize a device recovery dismantling information data base of said 1st product information added to said device, and collating of the corresponding device concerned and information for dissolving and classifying A collating means to collate the device concerned corresponding to said 1st product information on said device obtained with said input means, and said device recovery dismantling information data base

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This inventions are efficient and a thing about the technology which can recycle the sheathing member of a device by low cost about the recovery method and the recycle method of a sheathing member of the device used in the commercial scene.

[0002]

[Description of the Prior Art] With development of ED, many OA equipment, an automobile, home electronics, an electric electronic product, etc. circulate in a commercial scene, and these brought about fast economic development in the 20th century, and raised the life of human beings. However, the industry and the public welfare product which has brought us many enjoyment have given the big problem of a global environmental destruction in the second half of the 20th century. Moreover, while starvation of a natural resource is cried for, mass consumption of these products that have given us affluence led to mass consumption of a natural resource, and the problem that lack of an abandonment disposal plant, the hazardous chemical substance further discharged from an abandonment processing article do bad influences, such as environmental destruction, also in these abandonment processings has generated it.

[0003] An example is taken in current and these problems, recycle processing of a disposal processing article is carried out and considered by various forms, and recycle of metals, such as iron, aluminum stainless steel, etc. of a disposal processing article, or plastic material has been performed by current, the self-governing body, the disposal processor, etc.

[0004] However, the member for these recycle is a mere part, and almost all products do not pass along a recycle system, but it is discarded directly, and the present condition is the reclamation in the gestalt as it is after the most grinding, and the reclamation after incineration processing. Therefore, in spite of promoting recycle, problems, such as soil pollution and water pollution which the harmful matter discharged by lack of a reclamation lot and reclamation brings about, have occurred, and the air pollution problem by generating of the harmful gas which occurs at the time of incineration, for example, the dioxin which poses a problem in recent years, etc., the problem of the global warming by CO2 generating, etc. have occurred about incineration processing further.

[0005] Also in order to solve such a problem, in the economic structure of mass production method and mass consumption, construction of the economy-based-on-recycling social structure which used recycle as the nucleus is searched for, and as for various makers, those recycle-ization is mentioned as a technical problem with recovery with a responsible used product.

[0006] In the OA equipment represented by the copying machine etc. in it, it can say that the root where the format of a lease rental in the selling gestalt collects many used OA equipment is ready as compared with other industrial fields.

[0007] However, as various gestalten and a material are used by each OA equipment manufacturer and the present condition shows the configuration of OA equipment to drawing 1, the recycle has a large place depending on single OA equipment manufacturer. Therefore, it is inefficient-like and the present

condition is that the proper recycle system for environmental load reduction is not employed.

[0008] The recycle system which employed efficiently the feature of the selling gestalt of the OA equipment represented by the copying machine etc. under these circumstances is indicated by JP,10-216689,A. If it depends on this, from product property information, commercial-scene track record information, components life prediction information, workmanship instruction information, etc., the collected OA equipment can perform decomposition of efficient OA equipment and recovery of components by the operator, and supposes that recycle cost can be reduced.

[0009]

[Problem(s) to be Solved by the Invention] However, the class of OA equipment currently used in the commercial scene is huge, and in the above-mentioned official report, an operator needs to do the activity which changes with each information, and cannot necessarily call it an efficient activity. Moreover, by OA equipment manufacturer, since the goods layout differs, in the above-mentioned official report, it cannot be said to be the recycle system which took into consideration the OA equipment made from two or more OA equipment manufacturers that it can perform only from the model of limited OA equipment.

[0010] Moreover, the concrete recovery means of used OA equipment, recognition, and a judgment means are not indicated by the above-mentioned official report.

[0011] Moreover, that by which additives, such as a flame retarder, are specifically mixed in the quality of the material also for what has difficult recycle-izing at the collected used OA equipment sheathing member exists, and unification-ization of the quality of the material etc. is needed. Moreover, about an above-mentioned flame retarder, especially an above-mentioned halogen system flame retarder, carcinogenic, teratogenicity, etc. are pointed out and the material development beyond the measure of single OA equipment manufacturer and a material maker and its use are called for.

[0012] So, in order to promote such recycle vigorously, construction of the recycle system for the whole industry beyond the measure of OA equipment-manufacturer simple substance, such as performing efficiently recovery and judgment, and standardization of the quality of the material further specified in the industry for used OA equipment from a commercial scene, is searched for.

[0013] The purpose of this invention is being able to build a recycle system important for earth environmental protection as the industry beyond the framework between companies, enabling recycle of an efficient device by low cost, and improving the rate of recycling of a device further.

[0014]

[Means for Solving the Problem] A production process which carries said device which is the recycle method which according to one viewpoint of this invention used devices are collected and recycles components and a material of said device, and was generated in the (a) appointed area at an assignment recovery base, and is accumulated, (b) An input means to read the 1st product information that said assignment recovery base is added to said device, said 1st product information added to said device, and collating of the corresponding device concerned, It has a storage means to memorize a device recovery dismantling information data base of information for dissolving and classifying. A production process which collates the device concerned corresponding to said 1st product information on said device obtained with said input means at said assignment recovery base, and said device recovery dismantling information data base, (c) Based on collating with said 1st product information on said device, and said device recovery dismantling information data base, the device concerned is classified to two or more 1st classifications. A production process which memorizes judgment information on the device concerned in said device recovery dismantling information data base as 2nd product information, (d) Said assignment recovery base recognizes dismantling processing sheathing member information on the device concerned, and processing [in which it does not dissolve] member information based on said 1st product information or said device recovery dismantling information data base in each of said device classified to said two or more 1st classifications. A production process which has an output means to display said recognition result, and memorizes said dismantling processing sheathing member information and said processing [in which it does not dissolve] member information in said device recovery dismantling information data base, (e) A production process which disassembles the device

concerned based on a result shown by said output means to said dismantling processing sheathing member and said processing [in which it does not dissolve] member, and classifies said dismantling processing sheathing member to two or more 2nd classifications, (f) In an each processing sheathing member of said dismantling when it classified to said two or more 2nd classifications, and said processing [in which it does not dissolve] member A production process which carries said dismantling processing sheathing member to each material maker, carries said processing [in which it does not dissolve] member in each of said equipment manufacturer, and is accumulated, (g) Said accumulated dismantling processing sheathing member is processed into a rework by art based on said device recovery dismantling information data base. It has a production process which memorizes information on said rework in said device recovery dismantling information data base. A recycle method characterized by share-izing said device recovery dismantling information data base through a network between said assignment recovery base, said material maker, and said equipment manufacturer is offered.

[0015] A production process which according to other viewpoints of this invention is the method of collecting and recycling a used device made from two or more equipment manufacturers, collects said devices generated in the (a) appointed area, carries said device at an assignment recovery base, and is accumulated, (b) Collating of an input means to read product information by which said assignment recovery base is added to said device, said product information added to said device, and said corresponding device, It has an output means to display a recycle information data base used as information for dissolving and classifying. A production process which collates said device corresponding to said product information and said recycle information data base of said device obtained with said input means at said assignment recovery base, and outputs the result, (c) Based on a collating result of said product information on said outputted device, and said recycle information data base, said device is classified to two or more 1st classifications. A production process memorized in said recycle information data base by making judgment information on said device into the 1st judgment result, (d) Based on the 1st dismantling information which is in said product information or said recycle information data base in each about said device classified to said two or more 1st classifications, recycle information and reuse information on a sheathing member of said device, the case section, said sheathing member, and the case section are recognized. Based on a production process which outputs the result, and a result by which (e) output was carried out, said sheathing member and said case section of said device are disassembled. Said disassembled device is classified to two or more 2nd classifications which contain one of a member for the 1st recycle, and members for the 1st reuse at least. Furthermore, it sets to a production process memorized in said recycle information data base by making judgment information on said disassembled device into the 2nd judgment result, and said 2nd classification of (f) plurality. Said member for the 1st recycle Members for un-[1st reuse / of the 1st recycle] other than said member for the 1st reuse are based on the 2nd dismantling information in said product information or said recycle information data base. And a dismantling art of said member for un-[1st reuse / of the 1st recycle] And a production process which recognizes recycle information and reuse information on solution soma material, and outputs the result, (g) Based on an outputted result, said member for un-[1st reuse / of the 1st recycle] is disassembled. At least said disassembled member for un-[1st reuse / of the 1st recycle] A member for the 2nd recycle, A production process which classifies to two or more 3rd classifications containing one of members for the 2nd reuse, and is memorized in said recycle information data base by making into the 3rd judgment result judgment information on said member for un-[1st reuse / of the 1st recycle] disassembled further, (h) In said member for the 1st recycle contained in said 2nd classification and said two or more 3rd classifications, and said member for the 2nd recycle [two or more] Carry each member for recycle to each material maker, and it is accumulated. A production process which processes an accumulated each object member of said recycle into a rework by art based on said recycle information data base, and memorizes information on said obtained rework in said recycle information data base, (i) In said member for the 1st reuse contained in said 2nd classification and said two or more 3rd classifications, and said member for the 2nd reuse [two or more] Each member for reuse is inspected by method based on said recycle

information data base. Said inspection result is stored in said recycle information data base. Further After said inspection, Carry each member for reuse to each equipment manufacturer, and it is accumulated, and each accumulated member for reuse is processed and inspected by method based on said recycle information data base. It has a production process which obtains playback components and a playback product and memorizes information on said obtained playback components and aforementioned playback product in said recycle information data base. A recycle method characterized by share-izing said recycle information data base through a network between said assignment recovery base, said material maker, and said equipment manufacturer is offered.

[0016] An input means to read the 1st product information added to a device according to the viewpoint of further others of this invention, A storage means to memorize a device recovery dismantling information data base of said 1st product information added to said device, and collating of the corresponding device concerned and information for dissolving and classifying, Recycle equipment characterized by having a collating means to collate the device concerned corresponding to said 1st product information on said device obtained with said input means and said device recovery dismantling information data base is offered.

[0017] According to this invention, a recycle system important for earth environmental protection as the industry beyond a framework between companies can be built, recycle of an efficient device is enabled by low cost, and a rate of recycling of a device can be improved further.

[0018]

[Embodiment of the Invention] Hereafter, based on a drawing, the operation gestalt about the recycle system of an OA equipment sheathing member is explained.

[0019] (1st operation gestalt) Drawing 1 is a schematic diagram when the used OA equipment in the 1st operation gestalt of this invention applies the recycle system of an OA equipment sheathing member.

[0020] 21a, 21b, and 21c of drawing 2 express two or more end users who use various OA equipment. The used OA equipment generated with this OA equipment is collected by OA equipment manufacturers and the OA equipment vendors who are shown by 22 of drawing 2 , or those conveyance contractors that specified, and is collected, carried and accumulated at the assignment recovery base of 23 of drawing 2 .

[0021] At this time, it is desirable in the production process of recovery, conveyance, and accumulation to prepare at least one junction ground, as shown in drawing 3 . By preparing such a junction ground, it becomes possible to perform efficient recovery, conveyance, and accumulation. When the distance between a discharge location which collects, carries and accumulates directly the used OA equipment specifically discharged by the OA equipment user of 32e of drawing 3 at the assignment recovery base of 35, and an assignment recovery base is near, It is preparing a junction ground which are 34a, 34b, 34c, and 34d, when a discharge location and an assignment recovery base are far although it is satisfactory for a recovery means. In the place which arrived at the junction ground at the used OA equipment of a constant rate, it becomes possible on an assignment recovery base and the next junction background to build planned recovery and conveyance / accumulation production process by being carried and accumulated, and useless count of conveyance and distance can be reduced, and they are efficient recovery, conveyance, and integrated system. It is possible to reduce the cost of a recycle system furthermore.

[0022] Input (25) The production process after piling up the assignment recovery base 23 is a production process which collate by carrying out (26) about the 1st product information 24 at the data base terminal 215 of an assignment recovery base which read the 1st product information 24 on the used OA equipment accumulated on the assignment recovery base 23, and was connected to the OA equipment recovery dismantling information data base 219.

[0023] In this production process, although the 1st product information 24 on used OA equipment can also be obtained from the name of the product indicated by used OA equipment, the form of a product, etc., by this method, the activity by the human effort is required, that workability is also bad, and collating [made / in according to a human mistake / the mistake] may be performed. Therefore, it is desirable to allot an information record means beforehand to OA equipment at the time of OA

equipment manufacture. As for the 1st product information 24 which a bar code logbook, a magnetic bar code, etc. are mentioned as a concrete information record means, and is recorded on this information record means, it is desirable that one of the manufacture name of OA equipment, the name of a product, the form of a product, the date of manufacture, a part number, the dismantling processing sheathing member information on a product, and the processing [in which it does not dissolve] member information is contained at least. With the art of a dismantling processing sheathing member required for the information on the OA equipment recovery dismantling information data base 219 collated with this 1st product information 24 at dismantling down stream processing mentioned later, at least Moreover, the manufacture name of OA equipment, The name of a product, the form of a product, the date of manufacture, a part number, the dismantling processing sheathing member information on a product, and processing [in which it does not dissolve] member information, It is required to memorize and constitute one information on the quality of the material of a dismantling processing sheathing member, the material maker of a dismantling processing sheathing member, a dismantling processing sheathing member name, and a dismantling processing sheathing member number.

[0024] The 1st product information 24 can be read in information record means, such as a bar code, using information readers, such as an input means, for example, a bar code reader etc., by this, it can perform collating this information and the information on the OA equipment recovery dismantling information data base 219 further in an instant, and more efficient collating is attained.

[0025] The production process after collating (26) classifies used OA equipment to two or more 1st classifications based on the 1st above-mentioned product information 24 and the collating result of the OA equipment recovery dismantling information data base 219 (29). Moreover, it is the production process which memorizes the information classified at this time (29) in the OA equipment recovery dismantling information data base 219 as 2nd product information 28 through the data base terminal 215 of an assignment recovery base connected to the OA equipment recovery dismantling information data base 219.

[0026] As for the 1st classification classified at this time, it is desirable to be chosen out of one of OA equipment-manufacturer name, the name of a product, and the form of a product at least. In the below-mentioned dismantling production process, this is because the activity itself is enabled to simplify the demolition nature by the dismantling person, and to carry out in few procedures and an efficient demolition can be performed, when classified in OA equipment-manufacturer name, the name of a product, and the form of a product. Furthermore, when systems, such as automatic [demolition] dismantling line ** using an industrial robot etc., are established in the future, an efficient demolition becomes possible by subdivided judgment.

[0027] Moreover, as 2nd product information 28 memorized in the OA equipment recovery dismantling information data base 219, it is desirable to be chosen out of one of the manufacture name of OA equipment, the name of a product, and the form of a product at least. It is possible for this to manage information, such as a recovery track record of each OA equipment and a rate of recycling, according to the whole industry and model and according to maker, and since the OA equipment recovery dismantling information data base 219 is share-ized by the assignment recovery base, OA equipment manufacturer, and the material maker through the network, it is possible to get to know the track record of a recycle system by ONTAIMU.

[0028] Drawing 4 explains a concrete example of the production process so far. The 1st product information 44 is acquired for used OA equipment 41 which allotted information record means, such as a used bar code, first with the input means 42, such as a bar code reader. The 1st product information 44 is collated with the various product information 46a, 46b, and 46c memorized by the OA equipment recovery dismantling information data base 43, and the 1st corresponding product information 47 which carries out product information is acquired. And based on this, it is judgment (48) Made the 1st classification, and the OA equipment recovery dismantling information data base 43 is memorized for the classified information as 2nd product information 410.

[0029] Next, the production process which each used OA equipment classified to the 1st classification disassembles is explained using drawing 2.

[0030] It is the production process which memorizes the dismantling processing sheathing member information and the processing [in_which it does not dissolve] member information 211 of having recognized first dismantling processing sheathing member information and processing [in_which it does not dissolve] member information 211 from the 1st product information 24 in each used OA equipment, or the OA-equipment recovery dismantling information data base 219 (210), and having outputted and (212) recognized the information with output means, such as a liquid crystal panel and a monitor, in an OA-equipment recovery dismantling information data base 219 (213).

[0031] As for the dismantling processing sheathing member information included in dismantling processing sheathing member information and the processing [in which it does not dissolve] member information 211, at this time, it is desirable to consist of one information on the quality of the material of a dismantling processing sheathing member, a material maker, a dismantling processing sheathing member name, a dismantling processing sheathing member number, and quantity at least. This is that the quality of the material of a dismantling processing sheathing member, a material maker, a dismantling processing sheathing member name, a dismantling processing sheathing member number, and quantity are contained in dismantling processing sheathing member information. By becoming the effective information at the time of the judgment activity to below-mentioned dismantling and 2nd classification, and memorizing such information in the OA equipment recovery dismantling information data base 219 It is because it becomes possible to manage information, such as a recovery track record of the dismantling processing member of each OA equipment, and a rate of recycling, according to the whole industry and model and according to maker.

[0032] Moreover, the production process which memorizes the dismantling processing sheathing member information and the processing [in which it does not dissolve] member information 211 recognized at this time in the OA equipment recovery dismantling information data base 219 may be beforehand performed at the time of the production process which memorizes the 2nd above-mentioned product information 28 in the OA equipment recovery dismantling information data base 219 (27). On the contrary, the production process which memorizes the 2nd above-mentioned product information 28 in the OA equipment recovery dismantling information data base 219 (27) may be skipped, and the 2nd product information 28 may be memorized to coincidence at the time of the production process which memorizes dismantling processing sheathing member information and processing [in which it does not dissolve] member information 211 recognized at this time (210) in the OA equipment recovery dismantling information data base 219 (213).

[0033] And used OA equipment is disassembled after recognition (210) and storage (213) based on the dismantling processing sheathing member information and the processing [in which it does not dissolve] member information 211 displayed on output means, such as a liquid crystal panel and a monitor, (214), and a dismantling processing sheathing member is classified to the 2nd classification 216. Then, a processing [in which it does not dissolve] sheathing member is carried and accumulated for a dismantling processing sheathing member by the OA equipment manufacturers 220a and 220b to each material maker 221a, 221b, and 221c, respectively in the dismantling processing sheathing member and processing [in which it does not dissolve] member which were carried out judgment 216.

[0034] As for the classification method of the 2nd classification 216, at this time, it is desirable to be chosen out of one of the quality of the material and the material makers at least. This is classified for every quality of the material and material maker in a production process until it accumulates the below-mentioned dismantling processing sheathing member on a material maker and processes this to a rework, and while preventing mixing of other members to the middle, it is possible to gather regeneration effectiveness and it is because an efficient classification can be performed.

[0035] Moreover, to each material maker 221a, 221b, and 221c, the dismantling processing sheathing member may have a junction ground in the meantime, although a processing [in which it does not dissolve] sheathing member is carried and accumulated by the OA equipment manufacturers 220a and 220b, respectively. Furthermore, the material makers 221a, 221b, and 221c may be a contractor specified by a material maker, or the contractor of OA equipment-manufacturer assignment, respectively.

[0036] Used OA equipment is disassembled here, and a dismantling processing sheathing member and a processing [in which it does not dissolve] member are classified to the 2nd classification, and are explained using drawing 5 about a concrete example of the production process carried and accumulated.

[0037] Used OA equipment 51 (product made from OA equipment-manufacturer A) classified into the 1st classification, The information for dismantling [data base / 57 / OA equipment recovery dismantling information] of 52 (product made from OA equipment-manufacturer B) is acquired. The dismantling processing sheathing member information 59 and the processing [in which it does not dissolve] member information 510 are displayed for it on the output means 58. The quality-of-the-material A member 54 which dissolves based on this information (511) and constitutes used OA equipment 51 and 52 for this, the quality-of-the-material B member 55, the quality-of-the-material C member 56, processing [in which it does not dissolve] member 53a, It classifies to 53b (512), and is carried and accumulated at the material maker A514, the material maker B515, the material maker C516, the OA equipment manufacturer A517, and the OA equipment manufacturer B518, respectively.

[0038] Each dismantling processing sheathing member carried and accumulated to the material makers 221a, 221b, and 221c It lets each material maker's data base terminals 226a, 226b, and 226c connected with the OA equipment recovery dismantling information data base 219 through the network pass. Using the art of each dismantling processing sheathing member, each regeneration 222a, 222b, and 222c is performed, and each reworks 223a, 223b, and 223c are obtained. And it lets each material maker's data base terminals 226a, 226b, and 226c pass, and the information on the obtained reworks 223a, 223b, and 223c is memorized in the OA equipment recovery dismantling information data base 219 by which network connection was carried out. Thereby, information, such as a class, quantity, etc. of Reworks 223a, 223b, and 223c, can be known on real time. Between the assignment recovery base 23, the material makers 221a, 221b, and 221c and OA equipment-manufacturer 220a, and 220b is especially able to acquire the information on Reworks 223a, 223b, and 223c on real time, since the OA equipment recovery dismantling information data base 219 is share-ized through the network, and it is possible to manage recovery, conveyance, accumulation, dismantling, regeneration, etc. correctly. Although the processing [in which it does not dissolve] members 53a and 53b collected by the OA equipment manufacturer A517 and the OA equipment manufacturer B518 can leave processing to each OA equipment manufacturer, respectively, it is desirable to perform recycle reuse by the components and member covering details by each OA equipment manufacturer further.

[0039] Moreover, as for an OA equipment recovery dismantling information data base, it is desirable to connect through a network with the OA equipment vendor. This collects the used OA equipment currently installed in the sale place at the time of the OA equipment sale with a new OA equipment vendor. The used OA equipment collected from the information acquired from the OA equipment recovery information data base is carried and accumulated on an assignment recovery base and a junction background. Or it is because it can perform being carried and accumulated on the specified assignment recovery base or junction ground in the appointed area where a sale place belongs efficiently, and is because the storage condition of a recovery base and the junction ground can be further checked on real time and it becomes carriable to a more effective storage area.

[0040] It is desirable that an assignment recovery base exists in each appointed area when two or more appointed area exists, each OA equipment recovery dismantling information data base is connected through a network, and each OA equipment recovery dismantling information data base is share-ized through a network between an assignment recovery base, the junction ground, a material maker, and OA equipment manufacturer. This is set in two or more appointed area 61a and 61b, as shown in drawing 6. The assignment recovery bases 62a and 62b, junction ground 63a which exist in each area, 63b, 63c, 63d, and 64e are connected with the OA equipment recovery dismantling information data base 64 through the network 68. Moreover, the OA equipment recovery dismantling information data base 64 is connected through the network 68 also with the OA equipment manufacturer 65, the material maker 66, and the OA equipment vendor 67.

[0041] Thus, it is possible to grasp the actual condition of the used OA equipment which circulates in a commercial scene by unifying and managing the information on two or more appointed area, and

circulation adjustment etc. can be performed from OA equipment manufacturer, a material maker, etc., and it is effective.

[0042] The OA equipment recovery dismantling information data base may consist of two data bases with which the OA equipment dismantling information data base and the OA equipment recovery information data base became independent. This treats only print-outs, such as dismantling processing information on used OA equipment, about an OA equipment dismantling information data base, and an OA equipment recovery information data base treats the input of the recovery data of used OA equipment, dismantling processed data, etc. Thus, it is possible to avoid concern of eliminating and changing output-only information accidentally by dividing an OA equipment recovery dismantling information data base at the time of the input of recovery data, dismantling processed data, etc., and it is an effective means also in the field of security.

[0043] As for OA equipment, in employing the recycle system of the above OA equipment sheathing member, it is desirable to consist of OA equipment sheathing members which consist of the quality of the material of the assignment for which it opted among two or more OA equipment manufacturers. It is possible to be able to reduce the load of the above-mentioned dismantling / judgment activity, and to lower the cost of a system by carrying out like this. Moreover, it is possible to become the source of need by which the rework was stabilized by using the unification-ized quality of the material, and to attain stabilization of a system.

[0044] Moreover, also in the costs generated with these recycle systems, those costs are registered into the OA equipment recovery dismantling information data base, and it is desirable that accounting and collection of these costs are performed on a data base through the network where the OA equipment recovery dismantling information data base is connected. Thereby, it is possible to reduce the cost accompanying accounting and collection of costs, and accounting and collection of the costs in real time can be performed further.

[0045] Moreover, it is also possible to connect through the system and network in the environmental accounting asked for the useful information acquired through these systems by the company in the future. [0046] Although original recycle-ization of a single company was performed conventionally, according to this operation gestalt, a recycle system important for earth environmental protection as the industry beyond the framework between companies can be built, recycle of an efficient OA equipment sheathing member is enabled by low cost, and the rate of recycling of a product can be improved further. Moreover, it becomes possible for various information to come to hand on real time, and effects, such as cost reduction and time amount compaction, can be obtained with share-izing recycle information in a network.

[0047] (2nd operation gestalt) Drawing 7 is a schematic diagram at the time of applying used OA equipment to the recycle system of the OA equipment in the 2nd operation gestalt of this invention.

[0048] 71a, 71b, and 71C of drawing 7 express two or more end users who use various OA equipment. The used OA equipment generated in this OA equipment user is collected by OA equipment manufacturers and the OA equipment vendors who are shown by 72 of drawing 7, or those conveyance contractors that specified, and is collected, carried and accumulated at the assignment recovery base of 73 of drawing 7.

[0049] At this time, it is desirable in the production process of recovery, conveyance, and accumulation to prepare at least one junction ground, as shown in drawing 3. By preparing such a junction ground, it becomes possible to perform efficient recovery, conveyance, and accumulation. When the distance between a discharge location which collects, carries and accumulates directly the used OA equipment specifically discharged by the OA equipment user of 32e of drawing 3 at the assignment recovery base of 35, and an assignment recovery base is near, it is satisfactory for a recovery means. By however, the thing established for a junction ground which are 34a, 34b, 34c, and 34d when a discharge location and an assignment recovery base are far By being carried and accumulated on an assignment recovery base and the next junction background in the place which arrived at the junction ground at the used OA equipment of a constant rate It can become possible to build planned recovery and conveyance / accumulation production process, and useless count of conveyance and distance can be reduced, and

efficient recovery, conveyance, and integrated system can be built. It is possible to reduce the cost of a recycle system furthermore.

[0050] The production process after piling up the assignment recovery base 73 is a production process which reads the product information 74 on the used OA equipment accumulated on the assignment recovery base 73, inputs [75] and collates the product information 74 to the data-base terminal 714 of an assignment recovery base connected to the recycle information data base 713 (76), is an output means and outputs the result of collating 76 (77a). A printing means to output as printing information using a voice output means, a printer, etc. which are outputted with the voice using an image information output means, a loudspeaker, etc. which used a monitor, liquid crystal, etc. is mentioned to the output means at this time.

[0051] In this production process, although product **** 74 of used OA equipment can also be obtained from the name of the product indicated by used OA equipment, the form of a product, etc., by this method, the activity by the human effort is required, that workability is also bad, and collating [made / in according to a human mistake / the mistake] may be performed.

[0052] Therefore, it is desirable to allot an information record means beforehand to OA equipment at the time of OA equipment manufacture. As for the product information 74 which a bar code logbook, a magnetic bar code, etc. are mentioned as a concrete information record means, and is recorded on this information record means, it is desirable that one of the name of the maker of OA equipment, the name of an OA equipment product, the form and the model of an OA equipment product, the date of manufacture of OA equipment, the part number of OA equipment, the use hysteresis information on said OA equipment, the maintenance information on said OA equipment, and the components information on said OA equipment is contained at least. It is because information, such as a name of OA equipment, a name of a product, and form, is information required in order to classify to the 1st classification. Moreover, the use hysteresis information on OA equipment, maintenance information, and components information turn into useful information in the production process and dismantling production process which are classified to the 1st classification, the 2nd classification, and the 3rd classification. About this, a copying machine is mentioned as an example and explained. Also in the components same based on the information with which in the case of the copying machine practical use use years, the number of copies, etc. of OA equipment are recorded as use hysteresis information, and the information on the count of a maintenance, components, etc. is recorded further, and a unit the short thing of practical use use years, a long thing, and what has the few number of copies -- by classifying to different classifications, such as many things and existence of a maintenance It becomes possible to prepare a difference in the inspection process in a subsequent reuse production process, and while raising recycle effectiveness, it becomes possible to reduce recycle cost.

[0053] Moreover, product information which is needed for the information on the recycle information data base 713 collated with this product information 74 at least at the above-mentioned collating and the below-mentioned 1st dismantling information, The art of the 2nd dismantling information and the member for the 1st recycle, the art of the member for the 2nd recycle, The art of the member for the 3rd recycle, the art of the member for the 1st reuse, It is required to memorize or constitute the art, crushing / grinding judgment information, the 1st judgment result, the 2nd judgment result, the 3rd judgment result, and the 4th judgment result of the member for the 2nd reuse, and these serve as important information, such as dismantling of OA equipment, and judgment.

[0054] The product information 74 can be read in information record means, such as a bar code, using information readers, such as an input means, for example, a bar code reader etc., by this, collating with this product information 74 and the information on the recycle information data base 713 can be performed further in an instant, that collating result can be promptly known by the printed information printed using image information or a printer etc. which let the monitor pass, and efficient collating of it is attained.

[0055] The production process after collating (76) is the production process which memorizes in a recycle information data base 713 through the data-base terminal 714 of an assignment recovery base connected to a recycle information data base 713 by making into the 1st judgment information 79

information which classified used OA equipment to two or more 1st classifications based on the above-mentioned product information 74 and the collating result of the recycle information data base 713 (78), and was classified at this time (78) (710a).

[0056] As for the classification method of the 1st classification classified at this time, it is desirable to be chosen out of one of the form and models of the name of OA equipment manufacturer, the name of an OA equipment product, and OA equipment product at least. In the below-mentioned dismantling production process, this is because the activity itself is enabled to simplify the demolition nature by the dismantling person, and to carry out in few procedures and an efficient demolition can be performed, when classified from the form and the model of the name of OA equipment manufacturer, the name of an OA equipment product, and OA equipment product. Furthermore, it is because an efficient demolition becomes possible by subdivided judgment when systems, such as automatic [demolition] dismantling line ** using an industrial robot etc., are established in the future.

[0057] Moreover, as the 1st judgment result 79 memorized in the recycle information data base 713, it is desirable to be chosen out of one of the name of OA equipment manufacturer, the name of an OA equipment product, the form and the model of an OA equipment product, and the storage quantity at least. This becomes it is possible to manage information, such as a recovery track record of each OA equipment and a rate of recycling, according to the whole industry and model and according to maker, and possible to get to know the track record of a recycle system by ONTAIMU, since the recycle information data base 713 is share-ized by the assignment recovery base, OA equipment manufacturer, and the material maker through the network.

[0058] Drawing 8 explains a concrete example of the production process so far. The product information 84 on used OA equipment 81 is acquired for used OA equipment 81 which allotted information record means, such as a used bar code, first with the input means 82, such as a bar code reader. Product information 84 is collating (85) Made into the various product information 86a, 86b, and 86c memorized by the recycle information data base 83, and the corresponding product information 87 is acquired. And based on this, it is judgment (88) Made the 1st classification, and memorizes in the recycle information data base 83 by making classified information into the 1st judgment result 810.

[0059] Next, the production process which each used OA equipment classified to the 1st classification disassembles is explained using drawing 7.

[0060] Based on the information which outputted the information for the 1st dismantling information 712 with output means, such as a liquid crystal panel and a monitor, (77b), and was outputted from the product information 74 in each used OA equipment, or the recycle information data base 713, the sheathing member and the case section of the OA equipment which disassembled the sheathing member and the case section of OA equipment (711), and was disassembled further are first classified to two or more 2nd classifications (715). And it is the production process memorized in the recycle information data base 713 by making the judgment result to the 2nd classification into the 2nd judgment result 716 (710b).

[0061] At this time, it is desirable to equip the 1st dismantling information 712 with the sheathing member of OA equipment and the dismantling information on the case section, and the recycle information and reuse information on a sheathing member and the case section, and to be chosen out of one of the member numbers of the name of the name of OA equipment manufacturer of the name of the material maker of the quality of the material of a sheathing member and the case section, a sheathing member, and the case section. This is equipping the 1st dismantling information 712 with the dismantling information on a sheathing member and the case section, and the recycle information and reuse information on a sheathing member and the case section. While acquiring the effective information for disassembling the sheathing member of the OA equipment classified into the 1st classification, and the case section, the information for those recycle or reuse can be acquired. It is because it becomes this information and the effective information at the time of the judgment activity to the 2nd classification from the member number of the name of the name of OA equipment manufacturer of the name of the material maker of the quality of the material of a sheathing member and the case section, a sheathing member, and the case section, a sheathing member, and the

case section, a sheathing member, and the case section, a sheathing member, and the case section further.

[0062] Moreover, as the classification method of the 2nd classification, it is classified into the member 717 for the 1st recycle, the member 718 for the 1st reuse, and the member 719 for un-[1st reuse / of the 1st recycle] at least. Furthermore, at least the classification of the member 717 for the 1st recycle Each sheathing section, It is chosen out of one of the quality of the material of the case section, a material maker's name, a name, and the member numbers. At least the classification of the member 718 for the 1st reuse The quality of the material of each sheathing section and the case section, It is chosen out of one of the name of OA equipment manufacturer, a name, and the member numbers, and, as for the classification of the member 719 for un-[1st reuse / of the 1st recycle], it is desirable to be chosen out of the name of the name of each member for un-[1st reuse / of the 1st recycle], a member number, and OA equipment manufacturer at least.

[0063] The sheathing member and the case section which this classified are because subsequent recycle reuse arts differ in the quality of the material, a configuration, etc., respectively, and are performing an above-mentioned classification, and the classification of them into which the art etc. is unified is attained. Moreover, while preventing mixing of other members in the middle of a recycle reuse production process, it is possible to gather regeneration effectiveness and an efficient classification can be performed.

[0064] Thus, the 2nd judgment result 716 which is the classified information consists of a result of the 2nd classification, or its part, and it is desirable to be chosen out of one of the storage quantity for every classification and the storage days at least. In case it memorizes in the recycle information data base 713 as the 2nd judgment result 716 (710b), it is because it becomes possible to manage information, such as dismantling processing of each OA equipment sheathing member and the case section, a recovery track record, and a rate of recycling, according to the whole industry and model and according to maker.

[0065] The reuse production process of the 1st classification kind may be directly performed without the production process between the production processes of a sheathing member and the case section dismantling 711 from the judgment 78 of the 1st classification. That is, in the OA equipment classified into the kind for reuse which the model for reuse is specified as the 1st classification, and was specified by the product information 74 or the recycle information data base 713, it is the product information 74 or a method based on the recycle information data base 713, and is the production process which processes and inspects OA equipment and uses OA equipment as a playback product and playback components. This production process is explained in detail using drawing 9.

[0066] Based on the product information 91 or the recycle information data base 92, judgment 93 to the 1st classification is performed, the sheathing member and case section dismantling 94 of OA equipment are usually performed, and, as for OA equipment, judgment 95 to the 2nd classification is performed. under the present circumstances, model ***** used as the candidate for reuse etc. registers with the product information 91 or the recycle information data base 92 beforehand -- having -- **** -- these -- inspection after [the 1st classification] judgment 93 was taken 96a -- conveyance 97 is taken and OA equipment manufacturer, OA equipment-manufacturer production factory, and the OA equipment-manufacturer appointed factory 98 are piled up. Then, it can let the washing 99 by the product information 91 or the method based on the recycle information data base 92 and the reassembly 911 using new components and a unit 910, and inspection 96b pass, and a playback product and the playback components 912 can be obtained. Under the present circumstances, the information on an inspection result, or a playback product and playback components is memorized by the recycle information data base 92. Thereby, information with effective dismantling processing, recovery track record, rate of recycling, etc. can be acquired. Moreover, it is desirable to perform the judgment 715 and 93 to above-mentioned sheathing member and case section dismantling 711 and 94, and the 2nd classification or judgment 734 to the 3rd classification mentioned later in the OA equipment judged to be a defective by inspection processes 96a and 96b. It is effective for effective recycle reuse being performed and controlling discharge of trash by carrying out like this, also in what was judged to be a defective by inspection processes 96a and 96b. In the case where it is a product with high case where the above

production process has collected comparatively new OA equipment and reliability, it can be said that it is possible to save time and effort, such as dismantling and judgment, and it is a very effective means. [0067] Next, down stream processing of the member for un-[1st reuse / of the 1st recycle] classified by the 2nd classification is explained using drawing 7 . Here, the chassis section of OA equipment, an interior member, etc. are specifically [the member for un-/ 1st reuse / of the 1st recycle] mentioned. Two or more members 719 for un-[1st reuse / of the 1st recycle] output the information for the 2nd dismantling information 733 in the product information 74 or the recycle information data base 713 with output means, such as a liquid crystal panel and a monitor, (77c), and classify the members 719 for un-[1st reuse / of the 1st recycle], such as the chassis section of OA equipment, and an interior member, to two or more 3rd classifications based on the outputted information (734). And it is the production process memorized in the recycle information data base 713 by making the judgment result to the 3rd classification into the 3rd judgment result 735 (710d).

[0068] At this time, to the 2nd dismantling information 733, the dismantling information on the member 719 for un-[1st reuse / of the 1st recycle] of OA equipment, It has the recycle information and reuse information on the member 736 for the 2nd recycle mentioned later, and the member 737 for the 2nd reuse. And it is desirable to be chosen out of one of the name of the name of the quality of the material of the member 736 for the 2nd recycle, a name, a material maker's name, a member number, and the member 737 for the 2nd reuse, the quality of the material, and OA equipment manufacturer and the member numbers at least. This is equipping the 2nd dismantling information 733 with the dismantling information on the member 719 for un-[1st reuse / of the 1st recycle], the recycle information on the member 736 for the 2nd recycle, and the reuse information on the member 737 for the 2nd reuse. While acquiring the effective information for disassembling the member 719 for un-[1st reuse / of the 1st recycle] of the OA equipment classified into the 2nd classification, the member 719 for un-[1st reuse / of the 1st recycle] is disassembled. Recycle of the member 736 for the 2nd recycle classified and obtained, and the member 737 for the 2nd reuse, The information for reuse can be acquired. Further with this information The quality of the material of the member 736 for the 2nd recycle, It is because it becomes the judgment method to the 3rd classification from the name of the name of a name, a material maker's name, a member number, and the member 737 for the 2nd reuse, the quality of the material, and OA equipment manufacturer, and a member number, and the effective information at the time of an activity.

[0069] Moreover, as the classification method of the 3rd classification, it is classified into the member 736 for the 2nd recycle, the member 737 for the 2nd reuse, and the member 738 for un-[2nd reuse / of the 2nd recycle] at least. Furthermore, at least the classification of the member 736 for the 2nd recycle The quality of the material of each member for the 2nd recycle, It is chosen out of one of a material maker's name, a name, and the member numbers. At least the classification of the member 737 for the 2nd reuse The quality of the material of each member for the 2nd reuse, It is chosen out of one of the name of OA equipment manufacturer, a name, and the member numbers, and, as for the classification of the member 738 for un-[2nd reuse / of the 2nd recycle], it is desirable to be chosen out of one of the names of the name of each member for un-[2nd reuse / of the 2nd recycle], a member number, and OA equipment manufacturer at least.

[0070] The member for the 2nd recycle and the member for the 2nd reuse which this classified are because subsequent recycle reuse arts differ in the quality of the material, a configuration, etc., respectively, are performing an above-mentioned classification, and are because the classification into which the art etc. was unified is attained. Moreover, while preventing mixing of other members in the middle of a recycle reuse production process, it is possible to gather regeneration effectiveness and an efficient classification can be performed.

[0071] Thus, the 3rd judgment result 735 which is the classified information consists of a result of the 3rd classification, or its part, and it is desirable to be chosen out of one of the storage quantity for every classification and the storage days at least. In case it memorizes in the recycle information data base 713 as the 3rd judgment result 735 (710d), it is because it becomes possible to manage information, such as dismantling processing of each member for the 2nd recycle, and the member for the 2nd reuse, a

recovery track record, and a rate of recycling, according to the whole industry and model and according to maker.

[0072] Next, member down stream processing for recycle is explained. The member 718 for the 1st recycle and the member 736 for the 2nd recycle which were classified according to the judgment 715 to the 2nd classification and the judgment 734 to the 3rd classification carry each member for recycle to each material makers 728a and 728b (722b, 722c). It is processed into each reworks 731a and 731b by the method of the regeneration 729a and 729b of each member for recycle memorized by the recycle information data base 713. It is the production process which memorizes the information on each obtained reworks 731a and 731b in the recycle information data base 713. Thereby, since the information on each rework can be known on real time, important information when performing adjustment and management of the conveyance, the recovery, the accumulation, dismantling, and regeneration in the member for recycle can be acquired. Moreover, it is desirable to memorize the quantity of each member for recycle carried by the material makers 728a and 728b at this time (722b, 722c), a date of payment, etc. in the recycle information data base 713. More exact management etc. can be performed by carrying out like this. Moreover, although each member for recycle is carried and accumulated by each material maker 728a and 728b, you may have a junction ground in the meantime. Furthermore, the material makers 728a and 728b may be the contractors, the contractor, for example, the intermediate-processing-intermediate-treatment contractor etc., specified by a material maker etc., of OA equipment-manufacturer assignment, respectively.

[0073] Next, member down stream processing for reuse is explained. The member 717 for the 1st reuse and the member 737 for the 2nd reuse which were classified according to the judgment 715 to the 2nd classification, and the judgment 734 to the 3rd classification After classifying into each member for reuse, Inspection 721a and 721c is conducted by the method based on the recycle information data base 713, respectively. The inspection results 720a and 720b are memorized in the recycle information data base 713 (710c, 710e), and the inspection accepted product of the member for reuse is carried to each OA equipment manufacturers 723a and 723b (722a, 722d).

[0074] At this time, the inspection 721a and 721c before conveyance (722a, 722d) of each OA equipment manufacturers 723a and 723b may be omitted. It is possible to raise a process capability by inspection being conducted also after the below-mentioned reassembly and omitting the inspection 721a and 721c before conveyance depending on the case, and it is because recycle system cost can be reduced.

[0075] Washing and reassemblies 724a and 724b of each member for reuse are performed by the method memorized by the recycle information data base 713 in each member for reuse after conveyance (722a, 722d) of the OA equipment manufacturers 723a and 723b, inspection 721b and 721d by the method further memorized by the recycle information data base 713 is conducted, and a reprocessed article and the re-components 726a and 726b are obtained. The information on each reprocessed article and re-components 726a and 726b obtained at this time is memorized in the recycle information data base 713. Moreover, in washing and Reassemblies 724a and 724b, according to a case, it is desirable to supply new components and Units 725a and 725b, and the information supply and information storage which were supplied at this time, such as the amount of supply, an inventory, etc. of new components and Units 725a and 725b, are performed by the recycle information data base 713. Thereby, the information on each reprocessed article and re-component can be known on real time, and important information when performing adjustment and management of the conveyance, the recovery, the accumulation, dismantling, and regeneration in the member for reuse can be acquired.

[0076] Moreover, it is desirable to memorize the quantity of each member for reuse carried by the OA equipment manufacturers 723a and 723b at this time (722a, 722d), a date of payment, etc. in the recycle information data base 713. It is because more exact management etc. can be performed by carrying out like this.

[0077] Moreover, although each member for reuse is carried and accumulated by each OA equipment manufacturer 723a and 723b, you may have a junction ground in the meantime. Furthermore, the OA equipment manufacturers 723a and 723b may be the contractor of OA equipment-manufacturer

assignment, for example, an intermediate-processing-intermediate-treatment contractor, and contractors, such as a components maker, respectively.

[0078] In the inspection process of the member for reuse, although it passes through an above-mentioned production process about an inspection accepted product, it is desirable to recycle again the components for reuse judged that inspection is poor about an inspection defective. About especially the thing by which inspection results 720a and 720b were judged to be poor by the inspection process before the member 717 for the 1st reuse and the member 737 for the 2nd reuse are carried (722a, 722d), it is desirable to deal with each member for reuse with a poor inspection as a member for un-[2nd reuse / of the 2nd recycle]. Effective recycle of the member which cannot be reused is performed by carrying out like this, things can be carried out and the thing which control discharge of trash and for which a more effective recycle system is built becomes possible.

[0079] Next, the art of the member for un-[2nd reuse / of the 2nd recycle] is explained. Originally, it is the judgment 715 to the 2nd classification by decomposition and dismantling of a sheathing member and the case section, and the judgment 734 to the 3rd classification by decomposition and dismantling of the chassis section and an interior member ideally, and it is desirable that all can be classified to the member for recycle and the member for reuse. However, in the present condition, it is difficult to classify only by decomposition and dismantling in fact. That is because complicated members, such as a metal, a complicated composite material of plastics, and composite material of different-species plastics, are carried in the present product. Therefore, it is necessary to take into consideration also about the recycle about these members, i.e., the member for un-[2nd reuse / of the 2nd recycle].

[0080] First, they are the product information 74 or the recycle information data base 7 about each member 738 for un-[2nd reuse / of the 2nd recycle] classified into various classifications. Based on crushing / grinding judgment information 740 in 13, the information on crushing, grinding, and the judgment 739 of the member 738 for un-[2nd reuse / of the 2nd recycle] is recognized, and the recognition result is outputted with output means, such as a liquid crystal panel and a monitor. As for crushing / grinding judgment information 740, at this time, it is desirable to have the information which was equipped with the recycle information on the member 742 for the 3rd recycle of crushing / grinding information on the member 738 for un-[2nd reuse / of the 2nd recycle] and the after-mentioned, and was chosen from one of the name of the name of the member for the 3rd recycle, the quality of the material, and a material maker and the member numbers at least. This is equipping crushing / grinding judgment information 740 with crushing / grinding information on the member 738 for un-[2nd reuse / of the 2nd recycle], and the recycle information on the member 742 for the 3rd recycle. While acquiring the effective information for crushing and grinding the member 738 for un-[2nd reuse / of the 2nd recycle] of the OA equipment classified into the 3rd classification The information on the recycle sake of the member 742 for the 3rd recycle obtained by grinding [crushing] and classifying the member 738 for un-[2nd reuse / of the 2nd recycle] can be acquired. It is because it becomes this information, and the effective judgment method of the member for the 3rd recycle and the effective information at the time of an activity from the quality of the material of the member 742 for the 3rd recycle, a name, a material maker's name, and a member number further.

[0081] Next, crushing / grinding judgment information 740 on the member 738 for un-[2nd reuse / of the 2nd recycle] is recognized. It is based on the outputted result after outputting the result, and the member 738 for un-[2nd reuse / of the 2nd recycle] is crushed and ground. This is classified to two or more members 742 for the 3rd recycle, and it memorizes in the recycle information data base 713 by making into the 4th judgment result 741 judgment information on the member 738 for un-[2nd reuse / of the 2nd recycle] carried out further crushing and grinding / judgment 739 (710f).

[0082] At this time, it is desirable as the classification method of the member 742 for the 3rd recycle to be chosen out of one of the quality of the material of each member for the 3rd recycle, a material maker's name, a name, and the member numbers at least. The member 742 for the 3rd recycle which this classified is because subsequent recycle arts differ in the quality of the material, a configuration, etc., is performing an above-mentioned classification, and is because the classification into which the art etc. was unified is attained. Moreover, while preventing mixing of other members in the middle of a recycle

production process, it is possible to gather regeneration effectiveness and an efficient classification can be performed.

[0083] Thus, the 4th judgment result 741 which is the classified information consists of a result of the member 742 for the 3rd recycle, or its part, and it is desirable to be chosen out of one of the storage quantity for every classification and the storage days at least. In case it memorizes in the recycle information data base 713 as the 4th judgment result 741 (710f), it is because it becomes possible to manage information, such as dismantling processing of each member 742 for the 3rd recycle, a recovery track record, and a rate of recycling, according to the whole industry and model and according to maker.

[0084] And it is processed into rework 730c by art 729c based on [based on each material maker 728c for each classified member 742 for the 3rd recycle] the recycle information data base 713 for the member for conveyance 722e and each recycle accumulated and piled up, and the information on obtained rework 730c is memorized in the recycle information data base 713. Thereby, since the information on each rework 730c can be known on real time, important information when performing adjustment and management of the conveyance, the recovery, the accumulation, dismantling, and regeneration in the member for recycle can be acquired. Moreover, it is desirable to memorize the quantity of each member for recycle carried by material maker 728c at this time (722e), a date of payment, etc. in the recycle information data base 713. More exact management etc. can be performed by carrying out like this. Moreover, although each member for recycle is carried and accumulated by each material maker 728c, you may have a junction ground in the meantime. Furthermore, material maker 728c may be the contractors, the contractor, for example, the intermediate-processing-intermediate-treatment contractor etc., specified by a material maker etc., of OA equipment-manufacturer assignment, respectively.

[0085] Moreover, it sets to the member 736 for the 2nd recycle and the member 742 for the 3rd recycle which were produced at the old production process. When the member 736 for the 2nd recycle is the same classification as the classification of the member 718 for the 1st recycle, It is desirable to deal with the member 736 for the 2nd recycle as a member 718 for the 1st recycle at the time of judgment of the 3rd classification. When the member 742 for the 3rd recycle is the same classification as the classification of the member 718 for the 1st recycle, or the member 736 for the 2nd recycle similarly, It is desirable to deal with the member 742 for the 3rd recycle as the member 718 for the 1st recycle or a member 736 for the 2nd recycle at the time of judgment of the member for the 3rd recycle. This is unifying and managing them in the judgment at the time of components with the same quality of the material of a sheathing member and the case section etc. being used for the chassis section or an interior member, and recycling and reusing these, and it is possible to become possible to exclude a useless classification, to reduce recycle system cost, and to improve recycle effectiveness.

[0086] Used OA equipment is disassembled here and a more concrete example of the production process classified to the 1st classification, the 2nd classification, and the 3rd classification is explained using drawing 10.

[0087] Used OA equipment 1002 (product made from OA equipment-manufacturer A) classified by the 1st classification (1001), The information for dismantling 1009 is acquired for 1003 (product made from OA equipment-manufacturer B) from a recycle information data base. The sheathing members 1004a and 104b which disassemble it (1009) and consist this of the quality of the material A1004 which constitutes used OA equipment 1002 and 1003, Judgment 1010 of the 2nd classification of the sheathing members 1005a and 1005b which consist of the quality of the material B1005, the sheathing members 1006a and 1006b which consist of the quality of the material C1006, and the member 1011 for un-[1st reuse / of the 1st recycle] is carried out.

[0088] Next, judgment 1012 to the 3rd classification of the member 1011 for un-[1st reuse / of the 1st recycle] is performed. Although classified by the classification 1013 which consists of the chassis section components 1007a and 1007b and the members 1008a and 1008b for un-[2nd reuse / of the 2nd recycle] which consist of the quality of the material D1007 at this time at the 3rd classification (1012) Chassis section components 1006c which consists of chassis section components 1004c which consists

of the quality of the material A1004, and the quality of the material C1006 In judgment of the 3rd classification, chassis section components 1006c which consists of chassis section components 1004c which becomes the 2nd classification kind of the same quality of the material which exists in the classification produced in judgment of the 2nd classification from the quality of the material A1004, and the quality of the material C1006 is incorporated and classified, without newly classifying. A useless classification can be excluded by carrying out like this, and it can consider as the efficient classification method.

[0089] Said assignment recovery base has had the input means for inputting the condition of the solution soma of OA equipment and OA equipment into a recycle information data base, and it is still more desirable to input the condition of the solution soma of OA equipment and OA equipment into said recycle information data base in the production process chosen from one of the input production process of product information, the judgment production process of the 2nd classification, the judgment production process of the 3rd classification, and the judgment production processes of crushing and grinding at least. This is inputting the deficit of the appearance of the collected OA equipment, after [that dismantling] appearance, the components further built in OA equipment, and a unit, a failure condition, etc. into a recycle information data base at each production process, and OA equipment manufacturer connected from this input data in the network can acquire product information, such as an operating condition and a track record of OA equipment. And the appearance of OA equipment and its solution soma, a cleaning condition, an appearance condition, etc. enable it to give a big effect to the activity after a subsequent judgment production process. OA equipment manufacturer connected to the network judges the appearance of the specifically inputted OA equipment and its solution soma, a cleaning condition, an appearance condition, etc., and it also becomes possible to direct subsequent down stream processing directly. For example, in the member which was excellent in appearance, it is because it becomes possible of the abbreviation of recycle and activities [at the time of a reuse production process], such as washing, and damage to do the rational activity of skipping an inspection process and performing a part of message exchanges of the component etc. directly in intense components etc.

[0090] Moreover, as for a recycle information data base, it is desirable to connect through a network with the OA equipment vendor. This collects the used OA equipment currently installed in the sale place at the time of the OA equipment sale with a new OA equipment vendor. The used OA equipment collected from the information acquired from the recycle information data base is carried and accumulated on an assignment recovery base and a junction background. Or it is because it can perform being carried and accumulated on the specified assignment recovery base or junction ground in the appointed area where a sale place belongs efficiently, and is because the storage condition of a recovery base and the junction ground can be further checked on real time and it becomes carriable to a more effective storage area.

[0091] It is desirable that an assignment recovery base exists in each appointed area when two or more appointed area exists, each recycle information data base is connected through a network, and the recycle information data base is share-ized through a network between an assignment recovery base, the junction ground, a material maker, and OA equipment manufacturer. As this shows drawing 11, in two or more appointed area 1101a and 1101b, the assignment recovery bases 1102a and 1102b and the junction grounds 1103a, 1103b, 1103c, 1103d, and 1103e which exist in each area are connected with the recycle information data base 1104 through the network 1108, and the recycle information data base 1104 is connected through the network 1108 also with the OA equipment manufacturer 1105, the material maker 1106, and the OA equipment vendor 1107.

[0092] Thus, it is possible to grasp the actual condition of the used OA equipment which circulates in a commercial scene by unifying and managing the information on two or more appointed area, and circulation adjustment etc. can be performed from OA equipment manufacturer, a material maker, etc., and it is effective.

[0093] At least a recycle information data base The data base of product information, The data base of the 1st dismantling information, the data base of the 2nd dismantling information, the data base of the

art of the member for the 1st recycle, The data base of the art of the member for the 2nd recycle, the data base of the art of the member for the 3rd recycle, The data base of the art of the member for the 1st reuse, the data base of the art of the member for the 2nd reuse, You may consist of independent 2 data bases chosen from the data base of crushing / grinding judgment information, the data base of the 1st judgment result, the data base of the 2nd judgment result, and the data base of the 3rd judgment result and the data base of the 4th judgment result.

[0094] This about a recycle information data base The data base of the case where only the print-out of the data base of the art of the member for the 1st recycle, the data base of the art of the member for the 2nd recycle, etc. is treated, or the 1st judgment result, It is possible to avoid concern of eliminating and changing output-only information accidentally at the time of an input by treating the input of the data base of the 2nd judgment result etc., and dividing a recycle information data base, and it is an effective means also in the field of security.

[0095] As for OA equipment, in employing the recycle system of the above OA equipment, it is desirable to consist of OA equipment members which consist of the quality of the material of the assignment for which it opted among two or more OA equipment manufacturers.

[0096] It is possible to be able to reduce the load of the above-mentioned dismantling / judgment activity, and to lower the cost of a system by carrying out like this. Moreover, it is possible to become the source of need by which the rework was stabilized by using the unification-ized quality of the material, and to attain stabilization of a system.

[0097] Moreover, also in the costs generated with these recycle systems, those costs are registered into the recycle information data base, and it is desirable that accounting and collection of these costs are performed on a data base through the network where the recycle information data base is connected. Thereby, it is possible to reduce the cost accompanying accounting and collection of costs, and accounting and collection of the costs in real time can be performed further.

[0098] Moreover, it is also possible to connect through the system and network in the environmental accounting asked for the useful information acquired through these systems by the company in the future.

[0099] it is also possible to use for other industrial fields furthermore, although this recycle system is limited to the OA equipment field, and it applies to the field which collects and processes trash etc. as a public system in the future -- things are possible.

[0100] Although original recycle-ization of a single company was performed conventionally, according to this operation gestalt, a recycle system important for earth environmental protection as the industry beyond the framework between companies can be built, recycle of efficient OA equipment is enabled by low cost, and the rate of recycling of a product can be improved further. As a recycle system, it supposes that it is possible and not stopping at material recycle but reusing a product and components efficiently can still also aim at improvement in the further rate of recycling. Moreover, it becomes possible for various information to come to hand on real time, and effects, such as cost reduction of a recycle system and time amount compaction, can be obtained with share-izing recycle information in a network.

[0101] The program code of the software for realizing the function of the above-mentioned operation gestalt is supplied, and what was carried out by making it operate according to the program stored in the computer (CPU or MPU) of the system is contained under the category of this invention.

[0102] In this case, the function of the operation gestalt which the program code of the above-mentioned software itself mentioned above will be realized, and the record medium which stored the means for supplying that program code itself and its program code to a computer, for example, this program code, constitutes this invention. As a record medium which memorizes this program code, a floppy (registered trademark) disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used, for example.

[0103] In addition, it passes over no above-mentioned operation gestalten to what showed a mere example of the somatization which hits carrying out this invention, and the technical range of this invention must not be restrictively interpreted by these. That is, this invention can be carried out in various forms, without deviating from the technical thought or its main feature.

[0104]

[Effect of the Invention] As explained above, a recycle system important for earth environmental protection as the industry beyond the framework between companies according to this invention can be built, recycle of an efficient device is enabled by low cost, and the rate of recycling of a device can be improved further.

[Translation done.]

* NOTICES *

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is drawing which gave an example of the recycle system by the conventional OA equipment manufacturer.

[Drawing 2] It is drawing showing an example of the recycle system by OA equipment manufacturer of the 1st operation gestalt of this invention.

[Drawing 3] In the recovery production process from the OA equipment user of this operation gestalt to an assignment recovery base, it is drawing having shown an example in the case of carrying out a junction ground course.

[Drawing 4] It is drawing having shown an example of a production process which collates the 1st product information on this operation gestalt with an OA equipment recovery dismantling information data base, and memorizes the result to OA equipment recovery dismantling information as 2nd product information.

[Drawing 5] It is drawing which gave a concrete example which dissolves based on an OA equipment recovery dismantling information data base, and classifies the OA equipment sheathing member of this operation gestalt to the 2nd classification.

[Drawing 6] It is drawing which gave an example of network-connection-izing in the case of having two or more appointed area of this operation gestalt.

[Drawing 7] It is drawing having shown an example of the recycle system by OA equipment manufacturer of the 2nd operation gestalt of this invention.

[Drawing 8] It is drawing having shown an example of the production process which collates the product information on this operation gestalt with a recycle information data base, and is memorized in a recycle information data base by making the result into the 1st judgment result.

[Drawing 9] In the 1st classification of this operation gestalt, it is drawing having shown an example in the case of performing the production process of reuse of a direct product.

[Drawing 10] It is drawing which gave a concrete example classified to the 1st classification of this operation gestalt, the 2nd classification, and the 3rd classification.

[Drawing 11] It is drawing which gave an example of network-connection-izing in the case of having two or more appointed area of this operation gestalt.

[Description of Notations]

11a, 11b, 11c, 21a, 21b, 21c, 32a, 32b, 32c, 32d, 32e, 71a, 71b, 71c OA equipment user

12a, 12b, 12c OA equipment sale

13, 14, 15 Recovery of used OA equipment

16, 220a, 220b, 517, 518, 65, 723a, 723b, 1105 OA equipment manufacturer

17, 18, 51, 52, 1002, 1003 Used OA equipment

19 Recycle

110 Cast-Away Disposal

22, 33a, 33b, 33c, 33d, 33e, 33f, 33g, 33h, 33i, 72 Recovery, conveyance, and accumulation

23, 35, 62a, 62b, 73, 1102a, 1102b Assignment recovery base

24 44 1st product information
 25, 42, 75, 82 An input and input means
 26, 45, 76, 85 Collating
 27,213,224a, 224b, 224c, 49,513,710a, 710b, 710c, 710d, 710e, 710f, 89 Storage
 28,410 2nd product information
 29, 48, 78, 88, 93, 1001 Judgment to the 1st classification
 210 Recognition
 211 59,510 Dismantling processing sheathing member information and processing [in which it does not dissolve] member information
 212, 58, 77a, 77b, 77c An output and output means
 214, 511, 732 Dismantling
 215, 225a, 225b, 226a, 226b, 226c, 714, 727a, 727b, 731a, 731b, 731c Data base terminal
 216, 512, 715, 95, 1010 Judgment to the 2nd classification
 217 Conveyance and Accumulation of Processing [in Which it Does Not Dissolve] Member
 218 Conveyance and Accumulation of Dismantling Processing Sheathing Member
 219, 43, 57, 64 OA equipment recovery dismantling information data base
 221a, 221b, 221c, 514, 515, 516, 66,728a, 728b, 728c, 1014, 1015, 1016, 1017, 1107 Material maker
 222a, 222b, 222c, 729a, 729b, 729c Regeneration
 223a, 223b, 223c, 730a, 730b, 730c Rework
 31, 61a, 61b, 1101a, 1101b The appointed area
 34a, 34b, 34c, 34d, 63a, 63b, 63c, 63d, 63e, 1103a, 1103b, 1103c, 1103d, 1103e Junction ground
 41 81 Used OA equipment which allotted the information record means
 46a, 46b, 46c, 86a, 86b, 86c Information in a data base
 47 87 Collating result (1st product information after collating, and product information after collating)
 53a, 53b Processing [in which it does not dissolve] member
 54 Quality of the Material A of Dismantling Processing Sheathing Member
 55 Quality of the Material B of Dismantling Processing Sheathing Member
 56 Quality of the Material C of Dismantling Processing Sheathing Member
 67 1107 OA equipment vendor
 68 1108 Network
 74, 84, 91 Product information
 79,810 The 1st judgment result
 711, 94, 1009 A sheathing member and case section dismantling
 712 1st Dismantling Information
 713, 83, 92, 1104 Recycle information data base
 716 2nd Judgment Result
 717 Member for 1st Reuse
 718 Member for 1st Recycle
 719 1101 Member for un-[1st reuse / of the 1st recycle]
 720a, 720b Inspection result
 721a, 721b, 721c, 721d, 96a, 96b Inspection
 722a, 722b, 722c, 722d, 722e, 97 Conveyance
 724a, 724b, 99,911 Washing and reassembly
 725a, 725b, 910 New components and unit
 726a, 726b, 912 A ** (raw) product and ** (raw) components
 733 2nd Dismantling Information
 734 1012 Judgment to the 3rd classification
 735 3rd Judgment Result
 736 Member for 2nd Recycle
 737 Member for 2nd Reuse
 738, 1008a, 1008b, 1013 Member for un-[2nd reuse / of the 2nd recycle]

739 Crushing, Grinding, and Judgment
740 Crushing and Grinding / Judgment Information
741 4th Judgment Result
742 Member for 3rd Recycle
98 OA Equipment Manufacturer, OA Equipment-Manufacturer Production Factory, the OA Equipment-Manufacturer Appointed Location
1004 Quality of the Material A
1004a, 1004b Sheathing member which consists of the quality of the material A
1004c The chassis section components which consist of the quality of the material A
1005 Quality of the Material B
1005a, 1005b Sheathing member which consists of the quality of the material B
1006 Quality of the Material C
1006a, 1006b Sheathing member which consists of the quality of the material C
1006c The chassis section components which consist of the quality of the material C
1007 Quality of the Material D
1007a, 1007b Chassis section components which consist of the quality of the material D

[Translation done.]

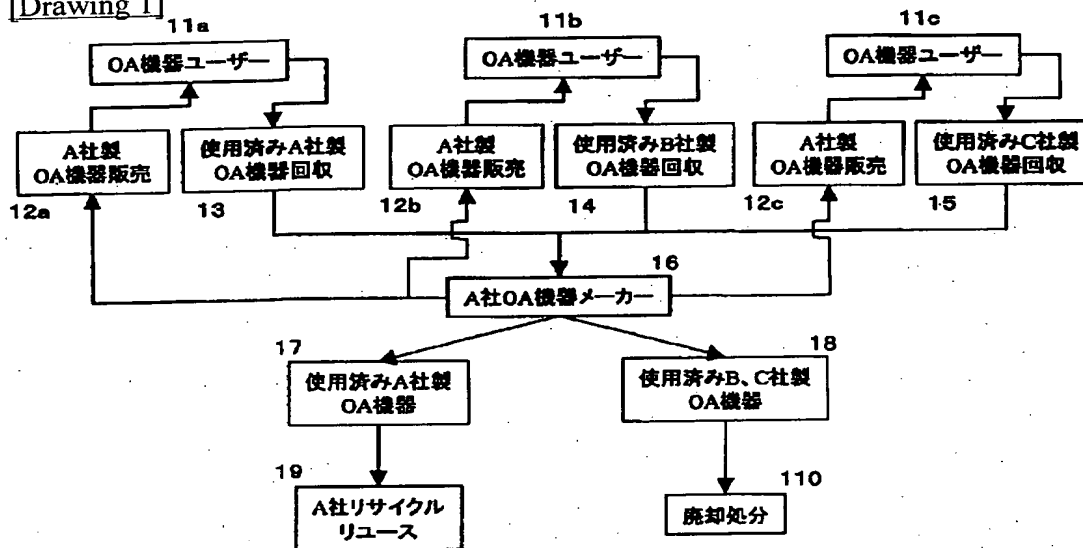
* NOTICES *

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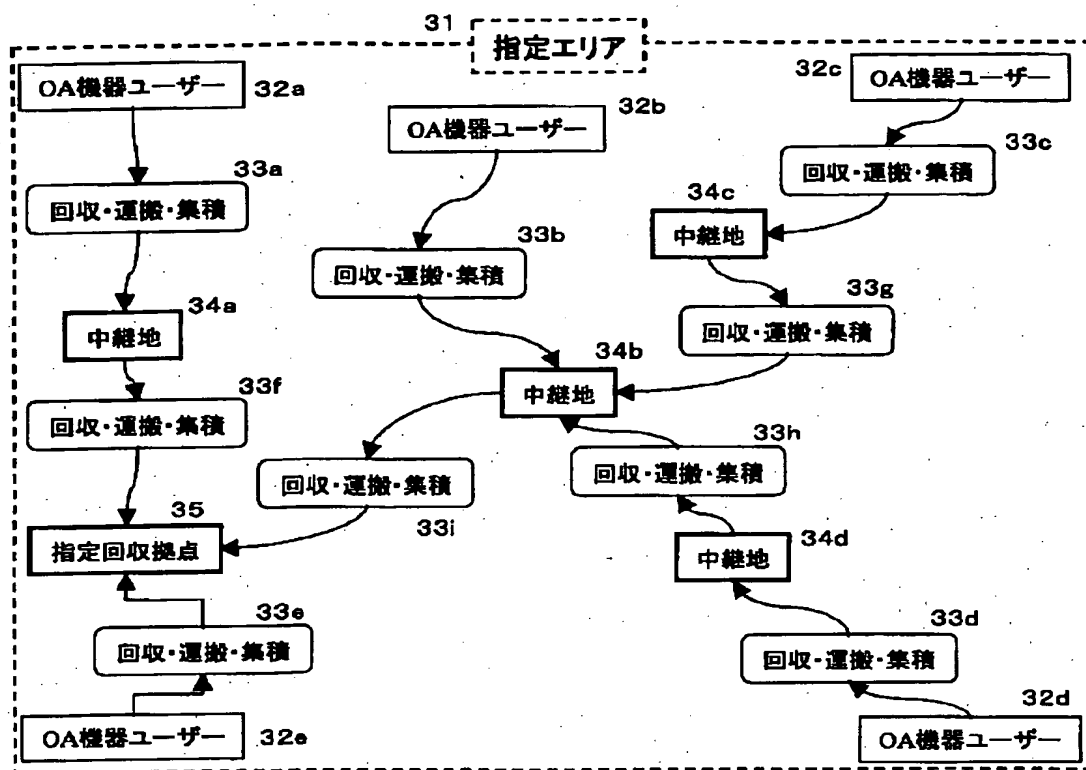
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

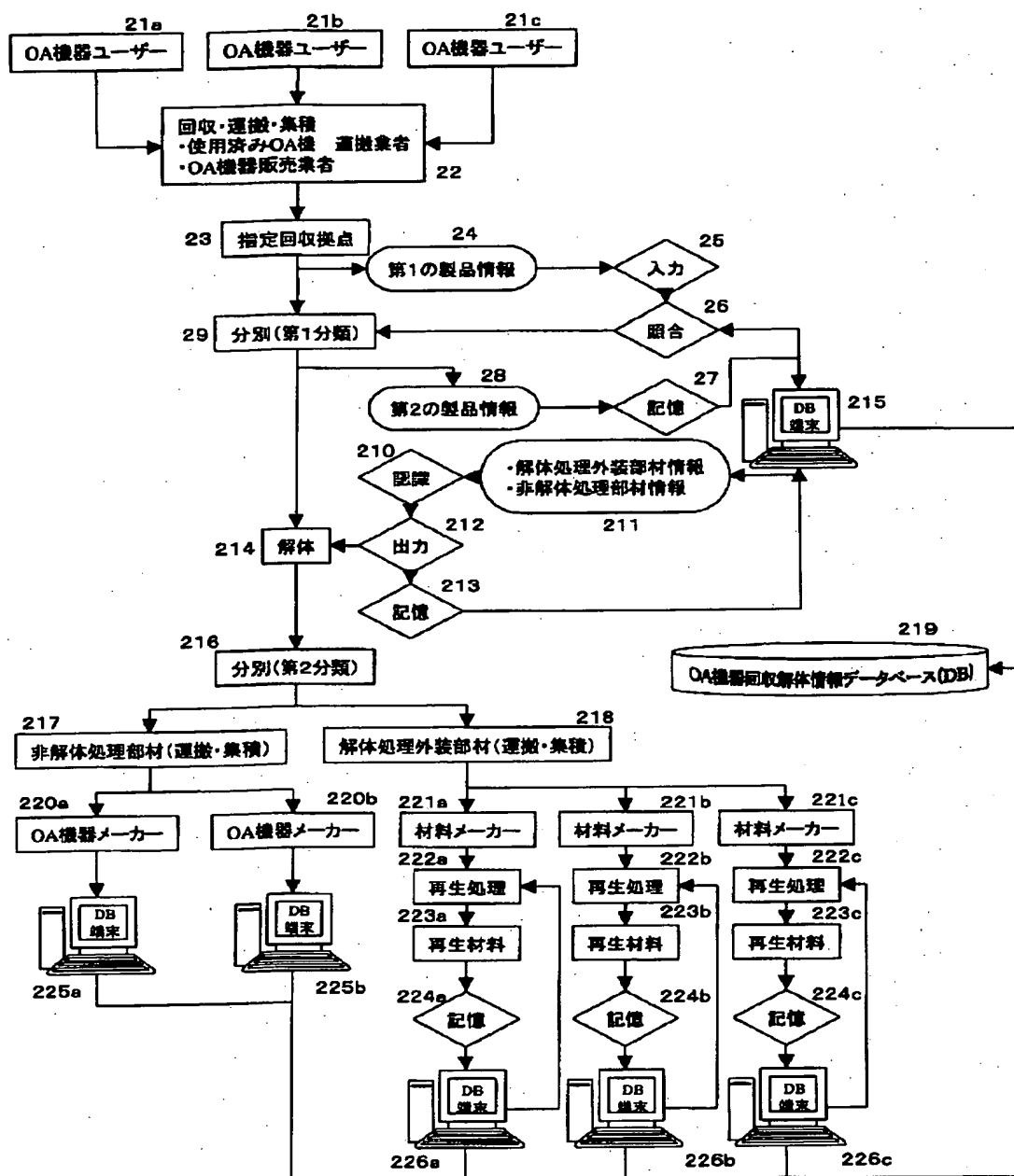
[Drawing 1]



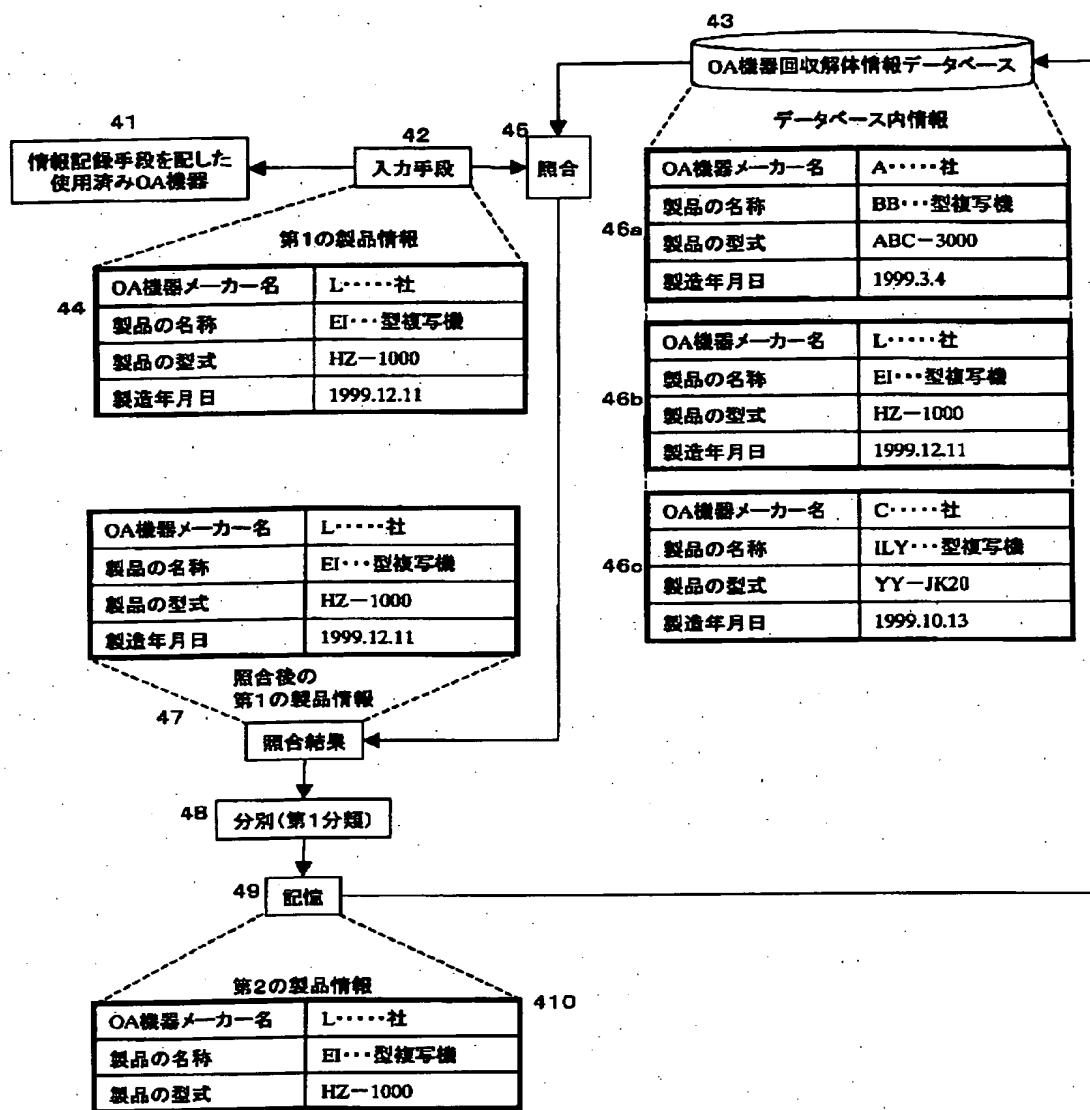
[Drawing 3]



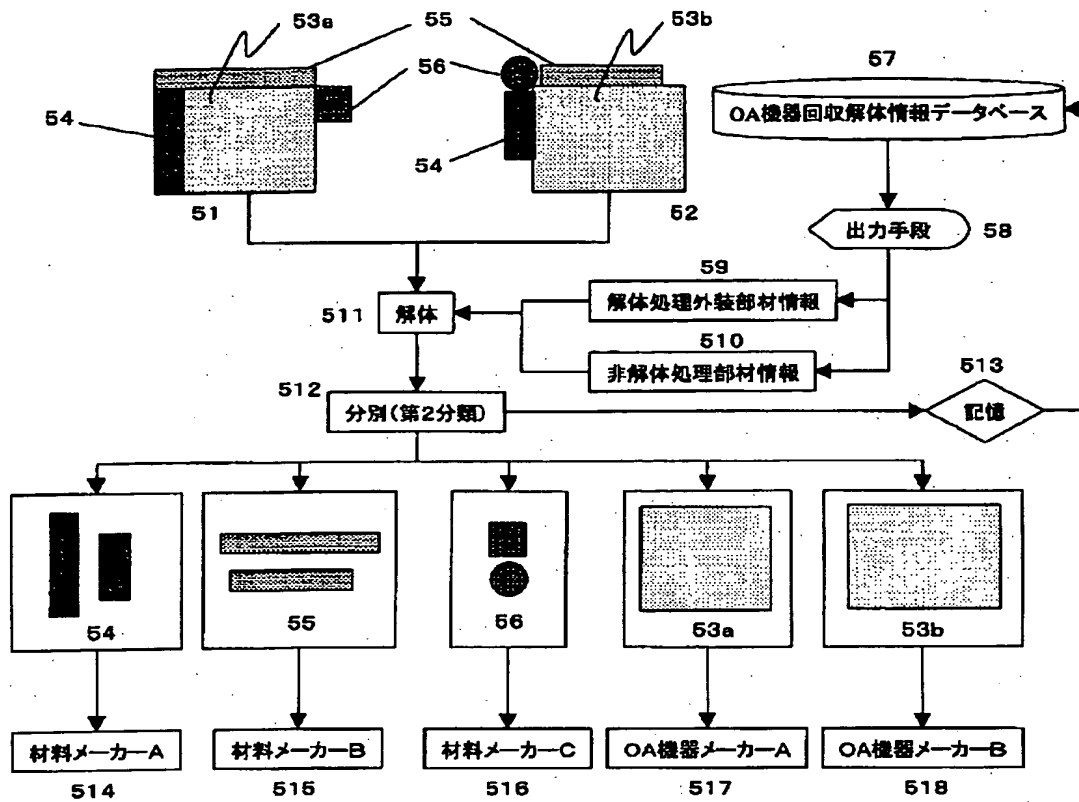
[Drawing 2]



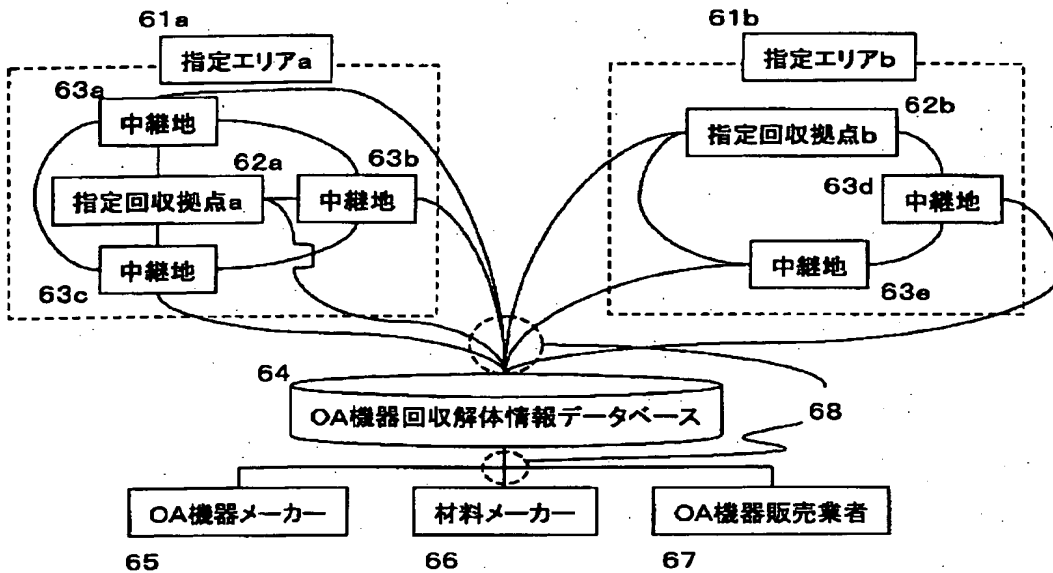
[Drawing 4]



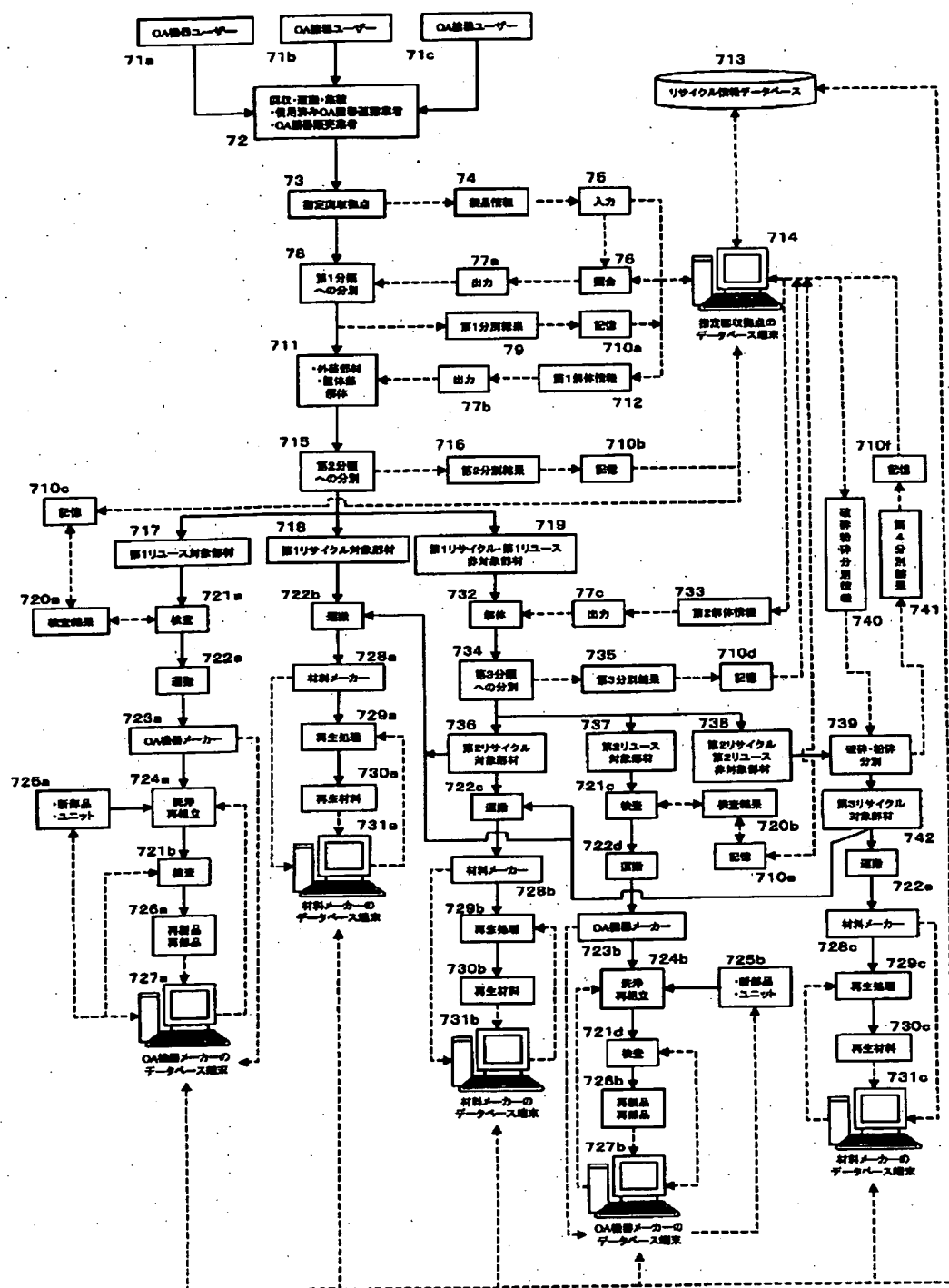
[Drawing 5]



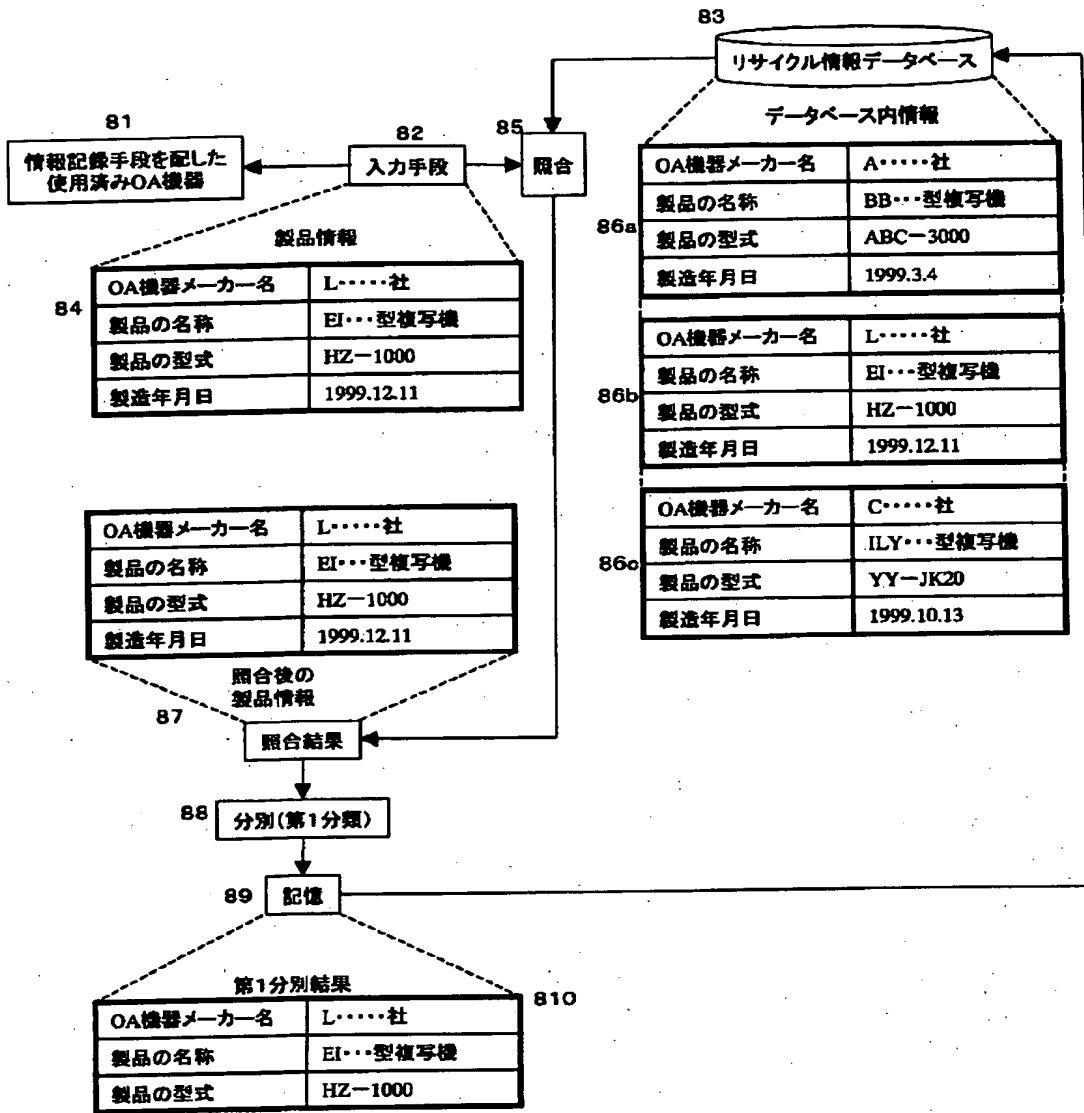
[Drawing 6]



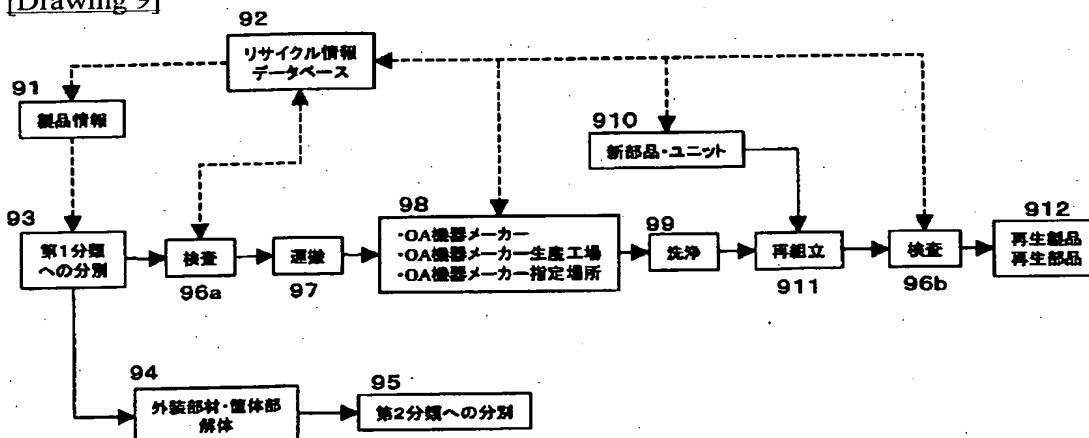
[Drawing 7]



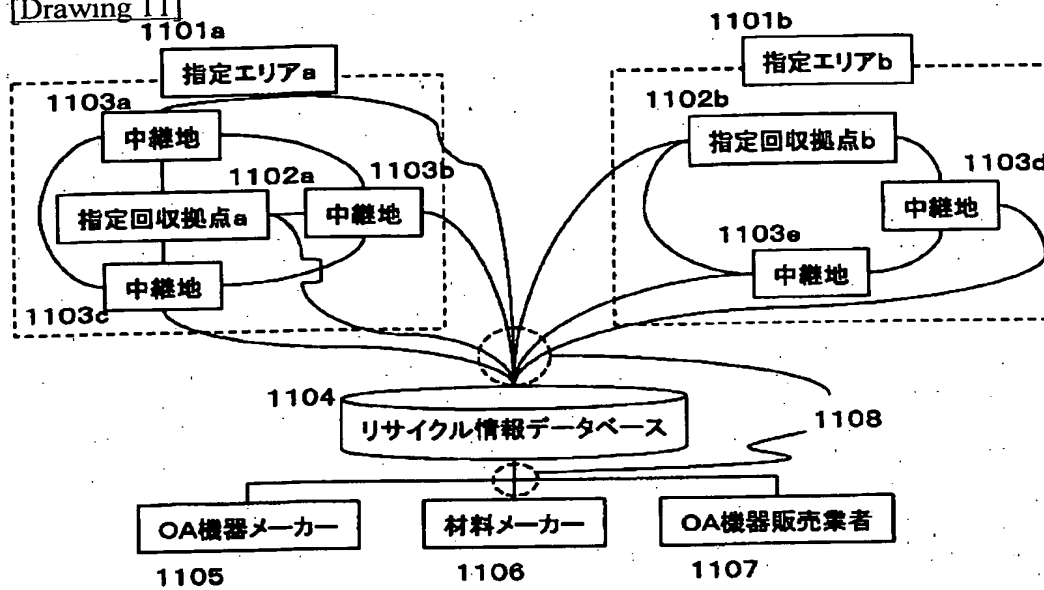
[Drawing 8]



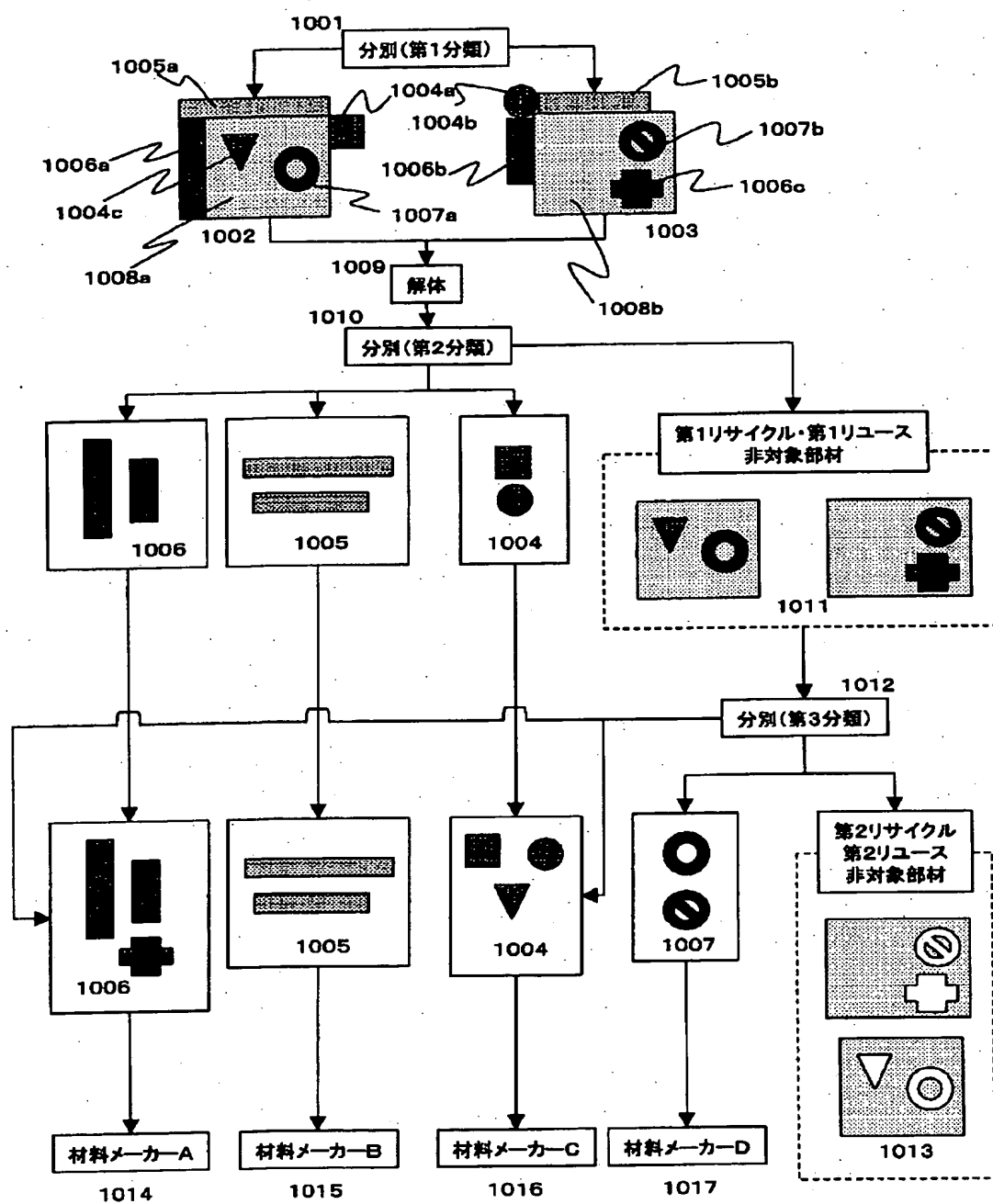
[Drawing 9]



[Drawing 11]



[Drawing 10]



[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号
特開2002-197147
(P2002-197147A)

(43) 公開日 平成14年7月12日 (2002.7.12)

(51) Int.Cl. ⁷	識別記号	F I	テーマコード(参考)
G 0 6 F 17/60	1 0 6 1 2 4	G 0 6 F 17/60	1 0 6 4 D 0 0 4 1 2 4
B 0 9 B 3/00 5/00	Z A B	B 0 9 B 3/00 5/00	Z C Z A B M
審査請求 未請求 請求項の数49 O L (全 26 頁)			

(21) 出願番号 特願2000-398977(P2000-398977)

(22) 出願日 平成12年12月27日 (2000. 12. 27)

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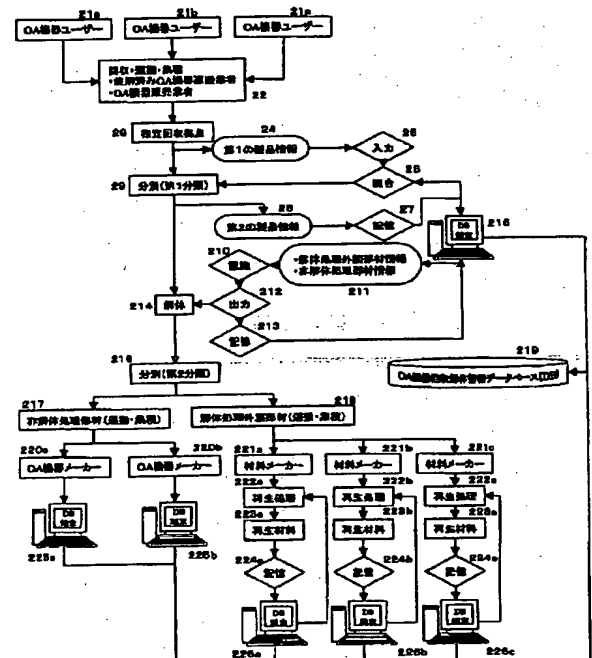
Fターム(参考) 4D004 AA22 BA07 BA10 CA02 CA04
CA07 DA16

(54) 【発明の名称】 リサイクル方法及びリサイクル装置

(57) 【要約】

【課題】 低コストで効率的な機器のリサイクルを可能とし、さらに機器のリサイクル率を向上させることを課題とする。

【解決手段】 本発明のリサイクル装置は、機器に付加されている第1の製品情報を読み込む入力手段と、機器に付加されている第1の製品情報と対応した当該機器の照合、解体、分別するための情報の機器回収解体情報データベースを記憶する記憶手段と、入力手段で得た機器の第1の製品情報と機器回収解体情報データベースに対応した当該機器を照合する照合手段とを有する。



【特許請求の範囲】

【請求項 1】 使用済み機器が回収され、前記機器の部品や材料をリサイクルするリサイクル方法であって、

(a) 指定エリア内で発生した前記機器を指定回収拠点に運搬して集積する工程と、

(b) 前記指定回収拠点は、前記機器に付加されている第 1 の製品情報を読み込む入力手段と前記機器に付加されている前記第 1 の製品情報と対応した当該機器の照合、解体、分別するための情報の機器回収解体情報データベースを記憶する記憶手段を有しており、前記指定回収拠点において前記入力手段で得た前記機器の前記第 1 の製品情報と前記機器回収解体情報データベースに対応した当該機器を照合する工程と、

(c) 前記機器の前記第 1 の製品情報と前記機器回収解体情報データベースとの照合に基づき当該機器を複数の第 1 分類に分別し、当該機器の分別情報を第 2 の製品情報として前記機器回収解体情報データベースに記憶する工程と、

(d) 前記指定回収拠点は複数の前記第 1 分類に分別した各々の前記機器を前記第 1 の製品情報或いは前記機器回収解体情報データベースに基づき当該機器の解体処理外装部材情報と非解体処理部材情報を認識し、前記認識結果を表示する出力手段を有し、前記解体処理外装部材情報と前記非解体処理部材情報を前記機器回収解体情報データベースに記憶する工程と、

(e) 前記出力手段により示された結果に基づき当該機器を前記解体処理外装部材と前記非解体処理部材に解体し、前記解体処理外装部材を複数の第 2 分類に分別する工程と、

(f) 複数の前記第 2 分類に分別した各々の前記解体処理外装部材及び前記非解体処理部材において、前記解体処理外装部材を各々の材料メーカーに、前記非解体処理部材を各々の前記機器メーカーに運搬して集積する工程と、

(g) 集積された前記解体処理外装部材を前記機器回収解体情報データベースに基づいた処理方法で再生材料に加工し、前記再生材料の情報を前記機器回収解体情報データベースに記憶する工程とを有し、

前記指定回収拠点、前記材料メーカー及び前記機器メーカーの間にネットワークを介して前記機器回収解体情報データベースが共有化されていることを特徴とするリサイクル方法。

【請求項 2】 前記機器に情報記録手段が配されていることを特徴とする請求項 1 記載のリサイクル方法。

【請求項 3】 前記指定エリア内で発生した前記機器を前記指定回収拠点に運搬して集積する工程において、前記指定エリアと前記指定回収拠点の間に少なくとも 1 箇所の中継地を有しており、さらに前記中継地はネットワークを介して、前記機器回収解体情報データベースと接続されていることを特徴とする請求項 1 又は 2 記載のリ

サイクル方法。

【請求項 4】 前記機器回収解体情報データベースは機器販売業者とネットワークを介して接続されており、前記機器販売業者は新規な機器販売時に販売先に設置されている使用済み機器を回収し、前記機器回収解体情報データベースより得られた情報から回収した前記使用済み機器を前記指定回収拠点または中継地に運搬し、集積する、あるいは前記販売先の属する前記指定エリア内の指定された前記指定回収拠点または中継地に運搬し、集積することを特徴とする請求項 1～3 のいずれかに記載のリサイクル方法。

【請求項 5】 前記機器回収解体情報データベースは前記解体処理外装部材の処理方法が記憶されており、かつ少なくとも前記機器のメーカー名、製品の名称、製品の型式、製造年月日、製品番号、製品の解体処理外装部材情報及び非解体処理部材情報、前記解体処理外装部材の材質、前記解体処理外装部材の材料メーカー、前記解体処理外装部材名称、前記解体処理外装部材番号のうちの 1 つの情報が記憶、構成されていることを特徴とする請求項 1～4 のいずれかに記載のリサイクル方法。

【請求項 6】 前記第 1 の製品情報は少なくとも前記機器のメーカー名、製品の名称、製品の型式、製造年月日、製品番号、製品の解体処理外装部材情報及び非解体処理部材情報のうちの 1 つの情報から構成されていることを特徴とする請求項 1～5 のいずれかに記載のリサイクル方法。

【請求項 7】 前記第 1 分類の分類方法が少なくとも前記機器のメーカー名、製品の名称、製品の型式のうちの 1 つから選ばれたものであることを特徴とする請求項 1～6 のいずれかに記載のリサイクル方法。

【請求項 8】 前記第 2 の製品情報は少なくとも前記機器のメーカー名、製品の名称、製品の型式のうちの 1 つから選ばれたものであることを特徴とする請求項 1～7 のいずれかに記載のリサイクル方法。

【請求項 9】 前記解体処理外装部材情報は少なくとも前記解体処理外装部材の材質、材料メーカー、前記解体処理外装部材名称、前記解体処理外装部材番号、数量のうちの 1 つの情報から構成されていることを特徴とする請求項 1～8 のいずれかに記載のリサイクル方法。

【請求項 10】 前記第 2 分類の分類方法が少なくとも材質、材料メーカーのうちの 1 つから選ばれたものであることを特徴とする請求項 1～9 のいずれかに記載のリサイクル方法。

【請求項 11】 前記指定エリアが複数形成される場合において、複数の前記指定エリア内に各々の前記指定回収拠点が存在し、各々の前記機器回収解体情報データベースがネットワークを介して接続され、各々前記指定回収拠点、前記材料メーカー及び前記機器メーカーとの間にネットワークを介して各々の前記機器回収解体情報データベースが共有化されていることを特徴とする請求項

1～10のいずれかに記載のリサイクル方法。

【請求項12】 前記機器回収解体情報データベースは機器解体情報データベースと機器回収情報データベースの独立した2つデータベースから構成されていることを特徴とする請求項1～11のいずれかに記載のリサイクル方法。

【請求項13】 前記機器は複数の前記機器メーカーの間で決定された指定の材質からなる前記機器外装部材から構成されていることを特徴とする請求項1～12のいずれかに記載のリサイクル方法。

【請求項14】 前記機器回収解体情報データベース内に、前記工程内で発生する費用が構成されており、前記費用の課金及び徴収が前記機器回収解体情報データベースが接続されてなるネットワークを介して行われることを特徴とする請求項1～13のいずれかに記載のリサイクル方法。

【請求項15】 複数の機器メーカー製の使用済み機器を回収してリサイクルする方法であって、

(a) 指定エリア内で発生した前記機器を回収し、前記機器を指定回収拠点に運搬して集積する工程と、

(b) 前記指定回収拠点は、前記機器に付加されている製品情報を読み込む入力手段と前記機器に付加されている前記製品情報と対応した前記機器の照合、解体、分別するための情報となるリサイクル情報データベースを表示する出力手段を有しており、前記指定回収拠点において前記入力手段で得た前記機器の前記製品情報と前記リサイクル情報データベースに対応した前記機器を照合し、その結果を出力する工程と、

(c) 出力された前記機器の前記製品情報と前記リサイクル情報データベースとの照合結果に基づき前記機器を複数の第1分類に分別し、前記機器の分別情報を第1分別結果として前記リサイクル情報データベースに記憶する工程と、

(d) 複数の前記第1分類に分別した各々の前記機器を前記製品情報或いは前記リサイクル情報データベースにある第1解体情報に基づき前記機器の外装部材及び筐体部及び前記外装部材及び筐体部のリサイクル情報及びリユース情報を認識し、その結果を出力する工程と、

(e) 出力された結果に基づき前記機器の前記外装部材及び前記筐体部を解体し、解体した前記機器を少なくとも第1リサイクル対象部材、第1リユース対象部材のうちの1つを含む複数の第2分類に分別し、更に解体した前記機器の分別情報を第2分別結果として前記リサイクル情報データベースに記憶する工程と、

(f) 複数の前記第2分類において、前記第1リサイクル対象部材及び前記第1リユース対象部材以外の第1リサイクル・第1リユース非対象部材を前記製品情報或いは前記リサイクル情報データベースにある第2解体情報に基づき前記第1リサイクル・第1リユース非対象部材の解体処理方法及び解体部材のリサイクル情報及びリユ

ース情報を認識し、その結果を出力する工程と、

(g) 出力された結果に基づき前記第1リサイクル・第1リユース非対象部材を解体し、解体した前記第1リサイクル・第1リユース非対象部材を少なくとも第2リサイクル対象部材、第2リユース対象部材のうちの1つを含む複数の第3分類に分別し、更に解体した前記第1リサイクル・第1リユース非対象部材の分別情報を第3分別結果として前記リサイクル情報データベースに記憶する工程と、

10 (h) 複数の前記第2分類及び複数の前記第3分類に含まれる前記第1リサイクル対象部材及び前記第2リサイクル対象部材において、各々のリサイクル対象部材を各々の材料メーカーに運搬して集積し、集積された各々の前記リサイクル対象部材を前記リサイクル情報データベースに基づいた処理方法で再生材料に加工し、得られた前記再生材料の情報を前記リサイクル情報データベースに記憶する工程と、

(i) 複数の前記第2分類及び複数の前記第3分類に含まれる前記第1リユース対象部材及び前記第2リユース対象部材において、各々のリユース対象部材を前記リサイクル情報データベースに基づいた方法で検査し、前記検査結果を前記リサイクル情報データベースに記憶させ、更に前記検査後、各々の機器メーカーに各々のリユース対象部材を運搬して集積し、集積された各々のリユース対象部材を前記リサイクル情報データベースに基づいた方法で処理・検査し、再生部品・再生製品を得て、得られた前記再生部品・前記再生製品の情報を前記リサイクル情報データベースに記憶する工程とを有し、前記指定回収拠点、前記材料メーカー及び前記機器メーカーの間にネットワークを介して前記リサイクル情報データベースが共有化されていることを特徴とするリサイクル方法。

【請求項16】 前記機器に情報記録手段が配されていることを特徴とする請求項15記載のリサイクル方法。

【請求項17】 前記指定エリア内で発生した前記機器を前記指定回収拠点に運搬して集積する工程において、前記指定エリアは前記機器の回収地点と前記指定回収拠点の間に少なくとも1箇所の中継地を有しており、さらに前記中継地はネットワークを介して、前記リサイクル情報データベースと接続されていることを特徴とする請求項15又は16記載のリサイクル方法。

【請求項18】 前記リサイクル情報データベースは機器販売業者とネットワークを介して接続されており、前記機器販売業者は新規な機器販売時に販売先に設置されている使用済み機器を回収し、前記リサイクル情報データベースより得られた情報から回収した前記使用済み機器を前記指定回収拠点または前記中継地に運搬し、集積する、あるいは前記販売先の属する前記指定エリア内の指定された前記指定回収拠点または前記中継地に運搬し、集積することを特徴とする請求項15～17のい

れかに記載のリサイクル方法。

【請求項19】 複数の前記第3分類における前記第2リサイクル対象部材及び前記第2リユース対象部材以外の第2リサイクル・第2リユース非対象部材を処理するために、さらに、

(j) 前記第2リサイクル・第2リユース非対象部材を前記製品情報或いは前記リサイクル情報データベースにある破碎・粉砕分別情報に基づき前記第2リサイクル・第2リユース非対象部材の破碎・粉砕方法及び破碎・粉砕後のリサイクル情報と分別情報を認識し、その結果を出力する工程と、

(k) 出力された結果に基づき前記第2リサイクル・第2リユース非対象部材を破碎・粉砕し、破碎・粉砕した前記第2リサイクル・第2リユース非対象部材を複数の第3リサイクル対象部材に分別し、更に破碎・粉砕した前記第2リサイクル・第2リユース非対象部材の分別情報を第4分別結果として前記リサイクル情報データベースに記憶する工程と、

(l) 複数の前記第3リサイクル対象部材において、各々のリサイクル対象部材を各々の材料メーカーに運搬して集積し、集積された各々の前記リサイクル対象部材を前記リサイクル情報データベースに基づいた処理方法で再生材料に加工し、得られた前記再生材料の情報を前記リサイクル情報データベースに記憶する工程と有することを特徴とする請求項15～18のいずれかに記載のリサイクル方法。

【請求項20】 前記指定回収拠点は前記機器及び前記機器の解体部の状態を前記リサイクル情報データベースに入力するための入力手段を有しており、少なくとも前記製品情報の入力工程、前記第2分類の分別工程、前記第3分類の分別工程、前記破碎・粉砕の分別工程のうちの1つから選ばれる工程において、前記機器及び前記機器の解体部の状態を前記リサイクル情報データベースに入力することを特徴とする請求項15～19のいずれかに記載のリサイクル方法。

【請求項21】 前記リサイクル情報データベース内に少なくとも前記製品情報、前記第1解体情報、前記第2解体情報、前記第1リサイクル対象部材の処理方法、前記第2リサイクル対象部材の処理方法、前記第3リサイクル対象部材の処理方法、前記第1リユース対象部材の処理方法、前記第2リユース対象部材の処理方法、前記破碎・粉砕分別情報、前記第1分別結果、前記第2分別結果、前記第3分別結果と前記第4分別結果が記憶或いは構成されていることを特徴とする請求項15～20のいずれかに記載のリサイクル方法。

【請求項22】 前記製品情報は少なくとも前記機器メーカーの名称、前記機器製品の名称、前記機器製品の型式・機種、前記機器の製造年月日、前記機器製品番号、前記機器の使用履歴情報、前記機器のメンテナンス情報、前記機器の部品情報から選ばれる1つの情報が記憶

されていることを特徴とする請求項15～21のいずれかに記載のリサイクル方法。

【請求項23】 前記第1分類の分類は少なくとも前記機器メーカーの名称、前記機器製品の名称、前記機器製品の型式・機種の中の1つから選ばれた分類であることを特徴とする請求項15～22のいずれかに記載のリサイクル方法。

【請求項24】 前記第1分別結果は少なくとも前記機器メーカーの名称、前記機器製品の名称、前記機器製品の型式・機種、前記機器の保管数量の中の1つから選ばれていることを特徴とする請求項15～23のいずれかに記載のリサイクル方法。

【請求項25】 前記第1分類にリユース対象種が指定されており、前記製品情報或いは前記リサイクル情報データベースにより指定されたリユース対象分類種に分類された前記機器において、前記機器は前記製品情報或いは前記リサイクル情報データベースに基づいた方法で処理・検査され、前記機器を再生製品・再生部品とし、得られた前記再生製品・前記再生部品の情報を前記リサイクル情報データベースに記憶することを特徴とする請求項15～24のいずれかに記載のリサイクル方法。

【請求項26】 前記第1解体情報は前記機器の外装部材及び筐体部の解体情報と、前記外装部材及び前記筐体部のリサイクル情報及びリユース情報を備え、少なくとも前記外装部材及び前記筐体部の材質、前記外装部材及び前記筐体部の材料メーカーの名称、前記外装部材及び前記筐体部の機器メーカーの名称、前記外装部材及び前記筐体部の名称、前記外装部材及び前記筐体部の部材番号の中の1つから選ばれることを特徴とする請求項15～25のいずれかに記載のリサイクル方法。

【請求項27】 解体した前記機器の前記第2分類の分類が少なくとも前記第1リサイクル対象部材、前記第1リユース対象部材、前記第1リサイクル・第1リユース非対象部材に分類されていることを特徴とする請求項15～26のいずれかに記載のリサイクル方法。

【請求項28】 前記第1リサイクル対象部材の分類は少なくとも各々の前記外装部材及び前記筐体部の材質、各々の前記外装部材及び前記筐体部の材料メーカーの名称、各々の前記外装部材及び前記筐体部の名称、各々の前記外装部材及び前記筐体部の部材番号の中の1つから選ばれていることを特徴とする請求項15～27のいずれかに記載のリサイクル方法。

【請求項29】 前記第1リユース対象部材の分類は少なくとも各々の前記外装部材及び前記筐体部の材質、各々の前記外装部材及び前記筐体部の機器メーカーの名称、各々の前記外装部材及び前記筐体部の名称、各々の前記外装部材及び前記筐体部の部材番号の中の1つから選ばれていることを特徴とする請求項15～28のいずれかに記載のリサイクル方法。

【請求項30】 前記第1リサイクル・第1リユース非

対象部材の分類は少なくとも各々の前記第1リサイクル・第1リユース非対象部材の名称、各々の前記第1リサイクル・第1リユース非対象部材の部材番号、各々の前記第1リサイクル・第1リユース非対象部材の機器メーカーの名称のうちの1つから選ばれていることを特徴とする請求項15～29のいずれかに記載のリサイクル方法。

【請求項31】 前記第2分別結果は前記第2分類の結果或いはその一部から構成され、少なくとも各々の分類ごとの保管数量、保管日のうちの1つから選ばれていることを特徴とする請求項15～30のいずれかに記載のリサイクル方法。

【請求項32】 前記第2解体情報は前記第1リサイクル・第1リユース非対象部材の解体情報と、前記第2リサイクル対象部材のリサイクル情報及び前記第2リユース対象部材のリユース情報を備え、少なくとも前記第2リサイクル対象部材の名称、前記第2リサイクル対象部材の材質、前記第2リサイクル対象部材の材料メーカーの名称、前記第2リサイクル対象部材の部材番号、前記第2リユース対象部材の名称、前記第2リユース対象部材の材質、前記第2リユース対象部材の機器メーカーの名称、前記第2リユース対象部材の部材番号のうちの1つから選ばれることを特徴とする請求項15～31のいずれかに記載のリサイクル方法。

【請求項33】 前記第1リサイクル・第1リユース非対象部材を解体した前記機器の前記第3分類の分類が少なくとも前記第2リサイクル対象部材、前記第2リユース対象部材、前記第2リサイクル・第2リユース非対象部材に分類されていることを特徴とする請求項15～32のいずれかに記載のリサイクル方法。

【請求項34】 前記第2リサイクル対象部材の分類は、少なくとも各々の前記第2リサイクル対象部材の材質、各々の前記第2リサイクル対象部材の材料メーカーの名称、各々の前記第2リサイクル対象部材の名称、各々の前記第2リサイクル対象部材の部材番号のうちの1つから選ばれていることを特徴とする請求項15～33のいずれかに記載のリサイクル方法。

【請求項35】 前記第2リユース対象部材の分類は少なくとも各々の前記第2リユース対象部材の材質、各々の前記第2リユース対象部材の機器メーカーの名称、各々の前記第2リユース対象部材の名称、各々の前記第2リユース対象部材の部材番号のうちの1つから選ばれていることを特徴とする請求項15～34のいずれかに記載のリサイクル方法。

【請求項36】 前記第2リサイクル・第2リユース非対象部材の分類は少なくとも各々の前記第2リサイクル・第2リユース非対象部材の名称、各々の前記第2リサイクル・第2リユース非対象部材の部材番号、各々の前記第2リサイクル・第2リユース非対象部材の機器メーカーの名称のうちの1つから選ばれていることを特徴と

する請求項15～35のいずれかに記載のリサイクル方法。

【請求項37】 前記第3分別結果は前記第3分類の結果或いはその一部から構成され、少なくとも各々の分類ごとの保管数量、保管日のうちの1つから選ばれていることを特徴とする請求項15～36のいずれかに記載のリサイクル方法。

【請求項38】 前記破碎・粉碎分別情報は前記第2リサイクル・第2リユース非対象部材の破碎・粉碎情報と、前記第3リサイクル対象部材のリサイクル情報を備え、少なくとも前記第3リサイクル対象部材の名称、前記第3リサイクル対象部材の材質、前記第3リサイクル対象部材の材料メーカーの名称、前記第3リサイクル対象部材の部材番号のうちの1つから選ばれることを特徴とする請求項15～37のいずれかに記載のリサイクル方法。

【請求項39】 前記第3リサイクル対象部材の分類が少なくとも各々の前記第3リサイクル対象部材の材質、各々の前記第3リサイクル対象部材の材料メーカーの名称、各々の前記第3リサイクル対象部材の名称、各々の前記第3リサイクル対象部材の部材番号のうちの1つから選ばれていることを特徴とする請求項15～38のいずれかに記載のリサイクル方法。

【請求項40】 前記第4分別結果は前記第3リサイクル対象部材の分類結果或いはその一部から構成され、少なくとも各々の分類ごとの保管数量、保管日のうちの1つから選ばれていることを特徴とする請求項15～39のいずれかに記載のリサイクル方法。

【請求項41】 前記第2リサイクル対象部材の種々の分類で前記第1リサイクル対象部材の分類と同一の前記第2リサイクル対象部材において、前記第1リサイクル対象部材の分類と同一の前記第2リサイクル対象部材を前記第3分類の分別時に前記第1リサイクル対象部材として取り扱うことを特徴とする請求項15～40のいずれかに記載のリサイクル方法。

【請求項42】 前記第3リサイクル対象部材の種々の分類で前記第1リサイクル対象部材或いは前記第2リサイクル対象部材の分類と同一の前記第3リサイクル対象部材において、前記第1リサイクル対象部材或いは前記第2リサイクル対象部材の分類と同一の前記第3リサイクル対象部材を前記第3リサイクル対象部材の分別時に前記第1リサイクル対象部材或いは前記第2リサイクル対象部材として取り扱うことを特徴とする請求項15～41のいずれかに記載のリサイクル方法。

【請求項43】 前記第1リユース対象部材及び前記第2リユース対象部材が前記機器メーカーに運搬される前の検査において、前記検査結果が不良である前記第1リユース対象部材及び前記第2リユース対象部材を前記第2リサイクル・第2リユース非対象部材として取り扱うことを特徴とする請求項15～42のいずれかに記載の

リサイクル方法。

【請求項44】 前記第1リユース対象部材及び前記第2リユース対象部材において、前記第1リユース対象部材及び前記第2リユース対象部材が前記機器メーカーに運搬される前の検査が省略されていることを特徴とする請求項15～43のいずれかに記載のリサイクル方法。

【請求項45】 前記指定エリアが複数形成される場合において、複数の前記指定エリア内に各々の前記指定回収拠点が存在し、各々の前記リサイクル情報データベースがネットワークを介して接続され、各々前記指定回収拠点を、前記材料メーカー及び前記機器メーカーとの間にネットワークを介して各々の前記リサイクル情報データベースが共有化されていることを特徴とする請求項15～44のいずれかに記載のリサイクル方法。

【請求項46】 前記リサイクル情報データベースは少なくとも前記製品情報のデータベース、前記第1解体情報のデータベース、前記第2解体情報のデータベース、前記第1リサイクル対象部材の処理方法のデータベース、前記第2リサイクル対象部材の処理方法のデータベース、前記第3リサイクル対象部材の処理方法のデータベース、前記第1リユース対象部材の処理方法のデータベース、前記第2リユース対象部材の処理方法のデータベース、前記破碎・粉砕分別情報のデータベース、前記第1分別結果のデータベース、前記第2分別結果のデータベース、前記第3分別結果のデータベースと前記第4分別結果のデータベースから選ばれる独立した2つデータベースから構成されていることを特徴とする請求項15～45のいずれかに記載のリサイクル方法。

【請求項47】 前記機器の少なくとも1つのリサイクル対象部材は複数の前記機器メーカーの間で決定された指定の材質であることを特徴とする請求項15～46のいずれかに記載のリサイクル方法。

【請求項48】 前記リサイクル情報データベースは前記機器のリサイクルシステム内で発生する費用が記憶・構成・計算・プログラムされており、前記費用の課金及び徴収がネットワークと接続されている前記リサイクル情報データベース内で行われることを特徴とする請求項15～47のいずれかに記載のリサイクル方法。

【請求項49】 機器に付加されている第1の製品情報を読み込む入力手段と、前記機器に付加されている前記第1の製品情報と対応した当該機器の照合、解体、分別するための情報の機器回収解体情報データベースを記憶する記憶手段と、前記入力手段で得た前記機器の前記第1の製品情報と前記機器回収解体情報データベースに対応した当該機器を照合する照合手段とを有することを特徴とするリサイクル装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明は市場で使用された機器の回収方法とその外装部材のリサイクル方法に関する

もので、効率的かつ低コストで機器の外装部材をリサイクルすることのできる技術に関するものである。

【0002】

【従来の技術】 技術開発の発展に伴い、多くのOA機器、自動車、家電製品、電気電子製品等が市場に流通し、これらは20世紀において飛躍的な経済発展をもたらし、人類の生活を向上させていった。しかしながら、20世紀後半、我々に多くの享受をもたらしてきた産業・民生製品は地球環境破壊という大きな問題を与えている。また天然資源の枯渇が叫ばれる中で、我々に豊かさを与えてきたこれら製品の大量消費は天然資源の大量消費につながり、これらの廃棄処理においても廃棄処理場の不足、さらに廃棄処理品から排出される有害化学物質等が環境破壊等の悪影響を及ぼすといった問題が発生している。

【0003】 現在、これらの問題を鑑み、廃棄処理品のリサイクル処理が様々な形で実施・検討されており、現在、自治体や廃棄処理業者などにより廃棄処理品の鉄・アルミ・ステンレス等の金属やプラスチック材料のリサイクルが行われてきている。

【0004】 しかしながらこれらリサイクル対象部材はほんの一部であり、またほとんどの製品がリサイクルシステムを通らず、直接廃棄され、そのほとんどが粉碎後あるいはそのままの形態での埋立てや、焼却処理後の埋立てといったのが現状である。そのためリサイクルを推進しているにも関わらず、埋立て用地の不足、埋立てにより排出される有害物質がもたらす土壌汚染・水質汚染といった問題が発生しており、さらに焼却処理に関しては、焼却時に発生する有害ガス、例えば近年問題となっているダイオキシンの発生などによる大気汚染問題、CO₂発生による地球温暖化の問題等が発生している。

【0005】 こうした問題を解消するためにも大量生産・大量消費の経済構造を、リサイクルを核とした循環型経済社会構造の構築が求められており、各種メーカーは使用済み製品の責任ある回収と、それらのリサイクル化が課題として挙げられている。

【0006】 その中において、複写機等に代表されるOA機器においては、その販売形態がリース・レンタルといった形式が多く使用済みOA機器を回収するルートが他の産業分野と比較して、整っているといえる。

【0007】 しかしながら、OA機器の構成は各OA機器メーカーにより種々の形態、材料が使用されており、現状では図1に示すように、そのリサイクルは単一のOA機器メーカーに依存するところが多い。そのため非効率的であり、環境負荷低減のための適正なリサイクルシステムが運用されていないのが現状である。

【0008】 そうした中で、複写機等に代表されるOA機器の販売形態の特徴を生かしたリサイクルシステムが

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る。これに依れば、回収されたOA機器は製品特性情報、市場実績情報、部品寿命予測情報、作業指示情報等から、作業者により効率的なOA機器の分解作業と部品の回収作業を行うことができ、リサイクルコストを低減することができるとしている。

【0009】

【発明が解決しようとする課題】ところが、市場で使用されているOA機器の種類は膨大なものであり、上記公報では作業者はそれぞれの情報により異なる作業を行う必要があり、必ずしも効率的な作業と行うことができない。またOA機器メーカーにより、その商品設計が異なることから、上記公報では、限られたOA機器の機種のみで実行可能であり、また複数のOA機器メーカー製のOA機器を考慮したリサイクルシステムとは言えない。

【0010】また上記公報では、使用済みOA機器の具体的な回収手段、認識、分別手段については記載されていない。

【0011】また回収された使用済みOA機器外装部材には材質にリサイクル化が困難なものも、具体的には難燃剤等の添加剤が混入されているもの等が存在しており、材質等の統一化が必要とされている。また上述の難燃剤、特にハロゲン系難燃剤に関しては、発癌性、催奇形性等が指摘されており、単一のOA機器メーカー、材料メーカーの取り組みを超えた材料開発及びその使用が求められている。

【0012】そこで、こうしたリサイクルを積極的に推進するためには、使用済みOA機器を市場から効率的に回収・分別、さらには業界で指定された材質の標準化を行うこと等、OA機器メーカー単体の取り組みを超えた業界全体のためのリサイクルシステムの構築が求められている。

【0013】本発明の目的は、企業間の枠組みを越えた業界として地球環境保護に重要なリサイクルシステムを構築することができ、低コストで効率的な機器のリサイクルを可能とし、さらに機器のリサイクル率を向上することである。

【0014】

【課題を解決するための手段】本発明の一観点によれば、使用済み機器が回収され、前記機器の部品や材料をリサイクルするリサイクル方法であって、(a)指定エリア内で発生した前記機器を指定回収拠点に運搬して集積する工程と、(b)前記指定回収拠点は、前記機器に付加されている第1の製品情報を読み込む入力手段と前記機器に付加されている前記第1の製品情報と対応した当該機器の照合、解体、分別するための情報の機器回収解体情報データベースを記憶する記憶手段を有しており、前記指定回収拠点において前記入力手段で得た前記機器の前記第1の製品情報と前記機器回収解体情報データベースに対応した当該機器を照合する工程と、(c)前記機器の前記第1の製品情報と前記機器回収解体情報

データベースとの照合に基づき当該機器を複数の第1分類に分別し、当該機器の分別情報を第2の製品情報として前記機器回収解体情報データベースに記憶する工程と、(d)前記指定回収拠点は複数の前記第1分類に分別した各々の前記機器を前記第1の製品情報或いは前記機器回収解体情報データベースに基づき当該機器の解体処理外装部材情報と非解体処理部材情報を認識し、前記認識結果を表示する出力手段を有し、前記解体処理外装部材情報と前記非解体処理部材情報を前記機器回収解体情報データベースに記憶する工程と、(e)前記出力手段により示された結果に基づき当該機器を前記解体処理外装部材と前記非解体処理部材に解体し、前記解体処理外装部材を複数の第2分類に分別する工程と、(f)複数の前記第2分類に分別した各々の前記解体処理外装部材及び前記非解体処理部材において、前記解体処理外装部材を各々の材料メーカーに、前記非解体処理部材を各々の前記機器メーカーに運搬して集積する工程と、

(g)集積された前記解体処理外装部材を前記機器回収解体情報データベースに基づいた処理方法で再生材料に加工し、前記再生材料の情報を前記機器回収解体情報データベースに記憶する工程とを有し、前記指定回収拠点、前記材料メーカー及び前記機器メーカーの間にネットワークを介して前記機器回収解体情報データベースが共有化されていることを特徴とするリサイクル方法が提供される。

【0015】本発明の他の観点によれば、複数の機器メーカー製の使用済み機器を回収してリサイクルする方法であって、(a)指定エリア内で発生した前記機器を回収し、前記機器を指定回収拠点に運搬して集積する工程と、(b)前記指定回収拠点は、前記機器に付加されている製品情報を読み込む入力手段と前記機器に付加されている前記製品情報と対応した前記機器の照合、解体、分別するための情報となるリサイクル情報データベースを表示する出力手段を有しており、前記指定回収拠点において前記入力手段で得た前記機器の前記製品情報と前記リサイクル情報データベースに対応した前記機器を照合し、その結果を出力する工程と、(c)出力された前記機器の前記製品情報と前記リサイクル情報データベースとの照合結果に基づき前記機器を複数の第1分類に分別し、前記機器の分別情報を第1分別結果として前記リサイクル情報データベースに記憶する工程と、(d)複数の前記第1分類に分別した各々の前記機器を前記製品情報或いは前記リサイクル情報データベースにある第1解体情報に基づき前記機器の外装部材及び筐体部及び前記外装部材及び筐体部のリサイクル情報及びリユース情報を認識し、その結果を出力する工程と、(e)出力された結果に基づき前記機器の前記外装部材及び前記筐体部を解体し、解体した前記機器を少なくとも第1リサイクル対象部材、第1リユース対象部材のうちの1つを含む複数の第2分類に分別し、更に解体した前記機器の分

別情報を第2分別結果として前記リサイクル情報データベースに記憶する工程と、(f)複数の前記第2分類において、前記第1リサイクル対象部材及び前記第1リユース対象部材以外の第1リサイクル・第1リユース非対象部材を前記製品情報或いは前記リサイクル情報データベースにある第2解体情報に基づき前記第1リサイクル・第1リユース非対象部材の解体処理方法及び解体部材のリサイクル情報及びリユース情報を認識し、その結果を出力する工程と、(g)出力された結果に基づき前記第1リサイクル・第1リユース非対象部材を解体し、解体した前記第1リサイクル・第1リユース非対象部材を少なくとも第2リサイクル対象部材、第2リユース対象部材のうちの1つを含む複数の第3分類に分別し、更に解体した前記第1リサイクル・第1リユース非対象部材の分別情報を第3分別結果として前記リサイクル情報データベースに記憶する工程と、(h)複数の前記第2分類及び複数の前記第3分類に含まれる前記第1リサイクル対象部材及び前記第2リサイクル対象部材において、各々のリサイクル対象部材を各々の材料メーカーに運搬して集積し、集積された各々の前記リサイクル対象部材を前記リサイクル情報データベースに基づいた処理方法で再生材料に加工し、得られた前記再生材料の情報を前記リサイクル情報データベースに記憶する工程と、

(i)複数の前記第2分類及び複数の前記第3分類に含まれる前記第1リユース対象部材及び前記第2リユース対象部材において、各々のリユース対象部材を前記リサイクル情報データベースに基づいた方法で検査し、前記検査結果を前記リサイクル情報データベースに記憶させ、更に前記検査後、各々の機器メーカーに各々のリユース対象部材を運搬して集積し、集積された各々のリユース対象部材を前記リサイクル情報データベースに基づいた方法で処理・検査し、再生部品・再生製品を得て、得られた前記再生部品・前記再生製品の情報を前記リサイクル情報データベースに記憶する工程とを有し、前記指定回収拠点、前記材料メーカー及び前記機器メーカーの間にネットワークを介して前記リサイクル情報データベースが共有化されていることを特徴とするリサイクル方法が提供される。

【0016】本発明のさらに他の観点によれば、機器に付加されている第1の製品情報を読み込む入力手段と、前記機器に付加されている前記第1の製品情報と対応した当該機器の照合、解体、分別するための情報の機器回収解体情報データベースを記憶する記憶手段と、前記入力手段で得た前記機器の前記第1の製品情報と前記機器回収解体情報データベースに対応した当該機器を照合する照合手段とを有することを特徴とするリサイクル装置が提供される。

【0017】本発明によれば、企業間の枠組みを越えた業界として地球環境保護に重要なリサイクルシステムを構築することができ、低コストで効率的な機器のリサイ

クルを可能とし、さらに機器のリサイクル率を向上することができる。

【0018】

【発明の実施の形態】以下、図面に基づいて、OA機器外装部材のリサイクルシステムについての実施形態について説明する。

【0019】(第1の実施形態)図1は本発明の第1の実施形態における使用済みOA機器がOA機器外装部材のリサイクルシステムを適用した場合の概略図である。

【0020】図2の21a、21b、21cは各種OA機器を使用する複数のエンドユーザーを表している。このOA機器で発生した使用済みOA機器は図2の22で示されるOA機器メーカー、OA機器販売業者、或いはそれらの指定した運搬業者に回収され、図2の23の指定回収拠点に回収・運搬・集積される。

【0021】このとき、回収・運搬・集積の工程において、図3に示すように少なくとも1箇所の中継地を設けることが好ましい。このような中継地を設けることにより、効率的な回収・運搬・集積を行うことが可能となる。具体的には図3の32eのOA機器ユーザーから排出される使用済みOA機器を直接35の指定回収拠点に回収・運搬・集積するような排出場所と指定回収拠点間の距離が近い場合、回収手段に問題はないが、排出場所と指定回収拠点が遠い場合、34a、34b、34c、34dのような中継地を設けることで、中継地に一定量の使用済みOA機器に達したところで、指定回収拠点、次の中継地に運搬・集積することで、計画的な回収・運搬・集積工程を構築することが可能となり、かつ無駄な運搬回数・距離を低減することができ、効率的な回収・運搬・集積システムである。さらにはリサイクルシステムのコストを低減することが可能である。

【0022】指定回収拠点23に集積後の工程は指定回収拠点23に集積された使用済みOA機器の第1の製品情報24を読み込み、OA機器回収解体情報データベース219に接続された指定回収拠点のデータベース端末215に第1の製品情報24を入力(25)し、照合(26)する工程である。

【0023】この工程において、使用済みOA機器の第1の製品情報24は、使用済みOA機器に記載された製品の名称、製品の型式等から得ることも可能であるが、この方法では人的労力による作業が必要であり、その作業性も悪く、人的ミスによる誤った照合が行われる可能性がある。従って、予めOA機器製造時に情報記録手段をOA機器に配することが好ましい。具体的な情報記録手段としてはバーコード記録帳、磁気バーコード等が挙げられ、この情報記録手段に記録される第1の製品情報24は少なくともOA機器のメーカー名、製品の名称、製品の型式、製造年月日、製品番号、製品の解体処理外装部材情報及び非解体処理部材情報の1つが含まれていることが好ましい。またこの第1の製品情報24と照合

するOA機器回収解体情報データベース219の情報には後述する解体処理工程で必要な解体処理外装部材の処理方法と少なくともOA機器のメーカー名、製品の名称、製品の型式、製造年月日、製品番号、製品の解体処理外装部材情報及び非解体処理部材情報、解体処理外装部材の材質、解体処理外装部材の材料メーカー、解体処理外装部材名称、解体処理外装部材番号の1つの情報が記憶、構成されていることが必要である。

【0024】これによりバーコード等の情報記録手段から入力手段、例えばバーコードリーダー等の情報読取装置を用いて、第1の製品情報24を読み取り、さらにこの情報とOA機器回収解体情報データベース219の情報とを照合することを瞬時に行うことができ、より効率的な照合作業が可能となる。

【0025】照合(26)後の工程は、上述の第1の製品情報24とOA機器回収解体情報データベース219の照合結果に基づき使用済みOA機器を複数の第1分類に分別(29)し、またこのとき分別(29)した情報を第2の製品情報28として、OA機器回収解体情報データベース219に接続された指定回収拠点のデータベース端末215を介して、OA機器回収解体情報データベース219に記憶する工程である。

【0026】このとき分別される第1分類は少なくともOA機器メーカー名、製品の名称、製品の型式の1つから選ばれたものであることが好ましい。これは後述の解体工程において、OA機器メーカー名、製品の名称、製品の型式で分別されている場合、解体者による解体作業性が簡素化され、また作業そのものが少ない手順で行うことが可能となり、効率的な解体作業が行えるためである。またさらには、将来、解体作業が工業ロボット等を用いた自動解体ライン等などのシステムが確立した場合、細分化された分別により、効率的な解体作業が可能となる。

【0027】またOA機器回収解体情報データベース219に記憶する第2の製品情報28としては、少なくともOA機器のメーカー名、製品の名称、製品の型式の1つから選ばれていることが好ましい。これにより、各OA機器の回収実績、リサイクル率等の情報を業界全体、機種別、メーカー別で管理することが可能であり、またOA機器回収解体情報データベース219がネットワークを介して指定回収拠点、OA機器メーカー、材料メーカーで共有化されていることからリサイクルシステムの実績をオンタイムで知ることが可能である。

【0028】ここまでの工程の具体的な一例を図4で説明する。まず使用済みバーコード等の情報記録手段を配した使用済みOA機器41をバーコードリーダー等の入力手段42で第1の製品情報44を得る。第1の製品情報44をOA機器回収解体情報データベース43に記憶されている種々の製品情報46a、46b、46cと照合し、該当する製品情報としての第1の製品情報47を得

る。そして、これに基づき第1分類に分別(48)し、分別した情報を第2の製品情報410として、OA機器回収解体情報データベース43を記憶する。

【0029】次に第1分類に分別した各々の使用済みOA機器の解体する工程について、図2を用いて説明する。

【0030】まず各々の使用済みOA機器における第1の製品情報24またはOA機器回収解体情報データベース219から解体処理外装部材情報・非解体処理部材情報211を認識(210)し、液晶パネル、モニター等の出力手段でその情報を出力(212)し、認識した解体処理外装部材情報・非解体処理部材情報211をOA機器回収解体情報データベース219に記憶(213)する工程である。

【0031】このとき、解体処理外装部材情報・非解体処理部材情報211に含まれる解体処理外装部材情報は少なくとも解体処理外装部材の材質、材料メーカー、解体処理外装部材名称、解体処理外装部材番号、数量の1つの情報から構成されていることが好ましい。これは解体処理外装部材情報に解体処理外装部材の材質、材料メーカー、解体処理外装部材名称、解体処理外装部材番号、数量が含まれることで、後述の解体・第2分類への分別作業時の有効な情報となり、またこれらの情報をOA機器回収解体情報データベース219に記憶することで、各OA機器の解体処理部材の回収実績、リサイクル率等の情報を業界全体、機種別、メーカー別で管理することが可能となるからである。

【0032】またこのとき認識した解体処理外装部材情報・非解体処理部材情報211をOA機器回収解体情報データベース219に記憶する工程を予め前述の第2の製品情報28をOA機器回収解体情報データベース219に記憶(27)する工程時に行ってもかまわない。逆に、前述の第2の製品情報28をOA機器回収解体情報データベース219に記憶(27)する工程を省略し、このとき認識(210)した解体処理外装部材情報・非解体処理部材情報211をOA機器回収解体情報データベース219に記憶(213)する工程時に同時に第2の製品情報28を記憶してもかまわない。

【0033】そして認識(210)、記憶(213)

後、液晶パネル、モニター等の出力手段に表示された解体処理外装部材情報・非解体処理部材情報211をもとに使用済みOA機器を解体(214)し、解体処理外装部材を第2分類216に分別する。その後、分別216された解体処理外装部材、非解体処理部材を解体処理外装部材はそれぞれの材料メーカー221a、221b、221cへ、非解体処理外装部材はそれぞれOA機器メーカー220a、220bに運搬・集積される。

【0034】このとき第2分類216の分類方法は少なくとも材質、材料メーカーの1つから選ばれることが好ましい。これは後述の解体処理外装部材を材料メーカー

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に集積し、これを再生材料に処理するまでの工程において、材質、材料メーカーごとに分類されることで、その途中に他の部材の混入を防止すると共に、再生処理効率を上げることが可能であり、効率的な分類が行えるからである。

【0035】また解体処理外装部材はそれぞれの材料メーカー221a、221b、221cへ、非解体処理外装部材はそれぞれOA機器メーカー220a、220bに運搬・集積されるが、その間に中継地を有していてもかまわない。さらに材料メーカー221a、221b、221cは、それぞれ、材料メーカー指定の業者或いはOA機器メーカー指定の業者であってもかまわない。

【0036】ここで使用済みOA機器を解体し、解体処理外装部材、非解体処理部材を第2分類に分別し、運搬・集積する工程の具体的な一例について図5を用いて説明する。

【0037】第1分類に分類された使用済みOA機器51(OA機器メーカーA製)、52(OA機器メーカーB製)をOA機器回収解体情報データベース57より解体のための情報を得て、それを出力手段58に解体処理外装部材情報59、非解体処理部材情報510を表示し、この情報に基づき解体(511)し、これを使用済みOA機器51、52を構成している材質A部材54、材質B部材55、材質C部材56、非解体処理部材53a、53bに分別(512)し、それぞれ材料メーカーA514、材料メーカーB515、材料メーカーC516、OA機器メーカーA517、OA機器メーカーB518に運搬・集積する。

【0038】材料メーカー221a、221b、221cに運搬・集積された各々の解体処理外装部材は、OA機器回収解体情報データベース219とネットワークを介して接続されたそれぞれの材料メーカーのデータベース端末226a、226b、226cを通して、各々の解体処理外装部材の処理方法を用いて、各々の再生処理222a、222b、222cを行い、各々の再生材料223a、223b、223cを得る。そして得られた再生材料223a、223b、223cの情報をそれぞれの材料メーカーのデータベース端末226a、226b、226cを通して、ネットワーク接続されたOA機器回収解体情報データベース219に記憶する。これにより、再生材料223a、223b、223cの種類・数量等の情報がリアルタイムでわかることができる。特に指定回収拠点23、材料メーカー221a、221b、221c及びOA機器メーカー220a、220b間がネットワークを介してOA機器回収解体情報データベース219が共有化されていることから再生材料223a、223b、223cの情報をリアルタイムに得ることが可能であり、回収・運搬・集積・解体・再生処理等の管理を正確に行うことが可能である。OA機器メーカーA517、OA機器メーカーB518に回収された非

解体処理部材53a、53bはそれぞれ各OA機器メーカーに処理を委ねられるが、さらに各OA機器メーカーで細部にわたる部品・部材でのリサイクル・リユースを行うことが好ましい。

【0039】またOA機器回収解体情報データベースはOA機器販売業者とネットワークを介して接続されていることが好ましい。これはOA機器販売業者が新規なOA機器販売時に販売先に設置されている使用済みOA機器を回収し、OA機器回収情報データベースより得られた情報から回収した使用済みOA機器を指定回収拠点または中継地に運搬・集積し、あるいは販売先の属する指定エリア内の指定された指定回収拠点または中継地に運搬・集積することが効率的に行えるからであり、さらには回収拠点・中継地の保管状況をリアルタイムで確認することができ、より効果的な保管場所への運搬が可能となるからである。

【0040】複数の指定エリアが存在する場合において、それぞれの指定エリアに指定回収拠点が存在し、各々のOA機器回収解体情報データベースがネットワークを介して接続され、指定回収拠点、中継地、材料メーカー及びOA機器メーカーとの間にネットワークを介して各々のOA機器回収解体情報データベースが共有化されていることが好ましい。これは図6に示すように複数の指定エリア61a、61bにおいて、それぞれのエリアに存在する指定回収拠点62a、62b、中継地63a、63b、63c、63d、64eがOA機器回収解体情報データベース64とネットワーク68を介して接続されており、またOA機器回収解体情報データベース64はOA機器メーカー65、材料メーカー66、OA機器販売業者67ともネットワーク68を介して接続されている。

【0041】このように複数の指定エリアの情報を統一して管理することで、市場に流通する使用済みOA機器の実態を把握することが可能であり、また流通調整等をOA機器メーカー、材料メーカー等から行うことができ有効である。

【0042】OA機器回収解体情報データベースはOA機器解体情報データベースとOA機器回収情報データベースの独立した2つのデータベースから構成されている。これはOA機器解体情報データベースについては、使用済みOA機器の解体処理情報等の出力情報のみを扱い、OA機器回収情報データベースは使用済みOA機器の回収データ、解体処理データ等の入力情報を扱うものである。このようにOA機器回収解体情報データベースを分割することで回収データ、解体処理データ等の入力時に誤って出力専用情報を消去、変更するといった懸念を回避することが可能であり、かつセキュリティの面においても有効な手段である。

【0043】以上のOA機器外装部材のリサイクルシステムを運用するにあたり、OA機器は複数のOA機器メ

メーカーの間で決定された指定の材質からなるOA機器外装部材から構成されていることが好ましい。こうすることで、前述の解体・分別作業の負荷を低減することができシステムのコストを下げることも可能である。また統一化された材質を用いることで再生材料の安定した需要源となり、システムの安定化を図ることが可能である。

【0044】またこれらのリサイクルシステムで発生する費用においても、その費用がOA機器回収解体情報データベースに登録されており、この費用の課金・徴収がOA機器回収解体情報データベースの接続されているネットワークを介して、データベース上で行われることが好ましい。これにより、費用の課金・徴収に伴うコストを削減することが可能であり、さらにリアルタイムでの費用の課金・徴収を行うことができる。

【0045】またこれらのシステムを通じて得られた有用な情報を将来、企業に求められている環境会計におけるシステムとネットワークを介して接続することも可能である。

【0046】従来、単一の企業独自のリサイクル化が行われていたが、本実施形態により、企業間の枠組みを越えた業界として地球環境保護に重要なリサイクルシステムを構築することができ、低コストで効率的なOA機器外装部材のリサイクルを可能とし、さらに製品のリサイクル率を向上することができる。またリサイクル情報をネットワークで共有化することで、種々の情報をリアルタイムで入手することが可能となり、コスト削減、時間短縮等の効果をあげることができる。

【0047】(第2の実施形態)図7は使用済みOA機器を本発明の第2の実施形態におけるOA機器のリサイクルシステムに適用した場合の概略図である。

【0048】図7の71a、71b、71cは各種OA機器を使用する複数のエンドユーザーを表している。このOA機器ユーザーで発生した使用済みOA機器は図7の72で示されるOA機器メーカー、OA機器販売業者、或いはそれらの指定した運搬業者に回収され、図7の73の指定回収拠点に回収・運搬・集積される。

【0049】このとき、回収・運搬・集積の工程において、図3に示すように少なくとも1箇所の中継地を設けることが好ましい。このような中継地を設けることにより、効率的な回収・運搬・集積を行うことが可能となる。具体的には図3の3-2-eのOA機器ユーザーから排出される使用済みOA機器を直接35の指定回収拠点に回収・運搬・集積するような排出場所と指定回収拠点間の距離が近い場合、回収手段に問題はない。しかし排出場所と指定回収拠点が遠い場合、34a、34b、34c、34dのような中継地を設けることで、中継地に一定量の使用済みOA機器に達したところで、指定回収拠点、次の中継地に運搬・集積することで、計画的な回収・運搬・集積工程を構築することが可能となり、かつ無駄な運搬回数・距離を低減することができ、効率的な回

収・運搬・集積システムを構築することができる。さらにはリサイクルシステムのコストを低減することが可能である。

【0050】指定回収拠点73に集積後の工程は指定回収拠点73に集積された使用済みOA機器の製品情報74を読み込み、リサイクル情報データベース713に接続された指定回収拠点のデータベース端末714に製品情報74を入力75、照合(76)し、照合76の結果を出力手段で、出力(77a)する工程である。このときの出力手段にはモニター、液晶などを用いた画像情報出力手段、スピーカーなどを用いた音声により出力する音声出力手段、プリンターなどを用いた印字情報として出力する印刷手段などが挙げられる。

【0051】この工程において、使用済みOA機器の製品情報74は、使用済みOA機器に記載された製品の名称、製品の型式等から得ることも可能であるが、この方法では人的労力による作業が必要であり、その作業性も悪く、人的ミスによる誤った照合が行われる可能性がある。

【0052】従って、予めOA機器製造時に情報記録手段をOA機器に配することが好ましい。具体的な情報記録手段としてはバーコード記録帳、磁気バーコード等が挙げられ、この情報記録手段に記録される製品情報74は少なくともOA機器のメーカーの名称、OA機器製品の名称、OA機器製品の型式・機種、OA機器の製造年月日、OA機器の製品番号、前記OA機器の使用履歴情報、前記OA機器のメンテナンス情報、前記OA機器の部品情報の1つが含まれていることが好ましい。何故ならOA機器の名称、製品の名称、型式等の情報は第1分類に分別するために必要な情報だからである。またOA機器の使用履歴情報、メンテナンス情報、部品情報は第1分類、第2分類及び第3分類に分別する工程、解体工程において、有用な情報となる。これについて複写機を例に挙げて説明する。複写機の場合、使用履歴情報としてはOA機器の実用使用年数及び複写枚数等が記録されており、さらにそのメンテナンス回数、部品等の情報が記録されている、その情報を基に同じ部品、ユニットにおいても、実用使用年数の短いものと長いもの、複写枚数の少ないもの多いもの、メンテナンスの有無等の異なる分類に分別することで、その後のリユース工程における検査工程に差異を設けたりすることが可能となり、リサイクル効率を向上させると共にリサイクルコストを削減することが可能となる。

【0053】またこの製品情報74と照合するリサイクル情報データベース713の情報には少なくとも前述の照合に必要な製品情報と後述の第1解体情報、第2解体情報、第1リサイクル対象部材の処理方法、第2リサイクル対象部材の処理方法、第3リサイクル対象部材の処理方法、第1リユース対象部材の処理方法、第2リユース対象部材の処理方法、破碎・粉砕分別情報、第1

分別結果、第2分別結果、第3分別結果と第4分別結果が記憶或いは構成されていることが必要であり、これらはOA機器の解体、分別等の重要な情報となる。

【0054】これによりバーコード等の情報記録手段から入力手段、例えばバーコードリーダー等の情報読取装置を用いて、製品情報74を読み取り、さらにこの製品情報74とリサイクル情報データベース713の情報との照合を瞬時に行うことができ、その照合結果はモニターを通した画像情報或いはプリンターなどを用いて印字される印刷情報等で速やかに知ることができ、効率的な照合作業が可能となる。

【0055】照合(76)後の工程は、上述の製品情報74とリサイクル情報データベース713の照合結果に基づき使用済みOA機器を複数の第1分類に分別(78)し、またこのとき分別(78)した情報を第1分別情報79として、リサイクル情報データベース713に接続された指定回収拠点のデータベース端末714を介して、リサイクル情報データベース713に記憶(710a)する工程である。

【0056】このとき分別される第1分類の分類方法は少なくともOA機器メーカーの名称、OA機器製品の名称、OA機器製品の型式・機種種の1つから選ばれたものであることが好ましい。これは後述の解体工程において、OA機器メーカーの名称、OA機器製品の名称、OA機器製品の型式・機種で分別されている場合、解体者による解体作業性が簡素化され、また作業そのものが少ない手順で行うことが可能となり、効率的な解体作業が行えるためである。またさらには、将来、解体作業が工業ロボット等を用いた自動解体ライン等などのシステムが確立した場合、細分化された分別により、効率的な解体作業が可能となるからである。

【0057】またリサイクル情報データベース713に記憶する第1分別結果79としては、少なくともOA機器メーカーの名称、OA機器製品の名称、OA機器製品の型式・機種、保管数量の1つから選ばれていることが好ましい。これにより、各OA機器の回収実績、リサイクル率等の情報を業界全体、機種別、メーカー別で管理することが可能であり、またリサイクル情報データベース713がネットワークを介して指定回収拠点、OA機器メーカー、材料メーカーで共有化されていることからリサイクルシステムの実績をオンタイムで知ることが可能となる。

【0058】ここまでの工程の具体的な一例を図8で説明する。まず使用済みバーコード等の情報記録手段を配した使用済みOA機器81をバーコードリーダー等の入力手段82で使用済みOA機器81の製品情報84を得る。製品情報84をリサイクル情報データベース83に記憶されている種々の製品情報86a、86b、86cと照合(85)し、該当する製品情報87を得る。そして、これに基づき第1分類に分別(88)し、分別した

情報を第1分別結果810として、リサイクル情報データベース83に記憶する。

【0059】次に第1分類に分別した各々の使用済みOA機器の解体する工程について、図7を用いて説明する。

【0060】まず各々の使用済みOA機器における製品情報74またはリサイクル情報データベース713から第1解体情報712を液晶パネル、モニター等の出力手段でその情報を出力(77b)し、出力した情報に基づいて、OA機器の外装部材・筐体部を解体(711)し、さらに解体したOA機器の外装部材・筐体部を複数の第2分類に分別(715)する。そして、その第2分類への分別結果を第2分別結果716としてリサイクル情報データベース713に記憶(710b)する工程である。

【0061】このとき、第1解体情報712にはOA機器の外装部材及び筐体部の解体情報と、外装部材及び筐体部のリサイクル情報及びリユース情報を備え、少なくとも外装部材及び筐体部の材質、外装部材及び筐体部の材料メーカーの名称、外装部材及び筐体部のOA機器メーカーの名称、外装部材及び筐体部の名称、外装部材及び筐体部の部材番号の1つから選ばれることが好ましい。これは第1解体情報712に外装部材及び筐体部の解体情報と、外装部材及び筐体部のリサイクル情報及びリユース情報を備えることで、第1分類に分類されたOA機器の外装部材、筐体部を解体する為の有効な情報を得ると共にそれらのリサイクル或いはリユースの為の情報を得ることができ、この情報とさらに外装部材及び筐体部の材質、外装部材及び筐体部の材料メーカーの名称、外装部材及び筐体部のOA機器メーカーの名称、外装部材及び筐体部の名称、外装部材及び筐体部の部材番号から、第2分類への分別作業時の有効な情報となるからである。

【0062】また第2分類の分類方法としては、少なくとも第1リサイクル対象部材717、第1リユース対象部材718、第1リサイクル・第1リユース非対象部材719に分類されており、更に第1リサイクル対象部材717の分類は少なくとも各々の外装部、筐体部の材質、材料メーカーの名称、名称及び部材番号の1つから選ばれ、第1リユース対象部材718の分類は少なくとも各々の外装部、筐体部の材質、OA機器メーカーの名称、名称及び部材番号の1つから選ばれ、第1リサイクル・第1リユース非対象部材719の分類は少なくとも各々の第1リサイクル・第1リユース非対象部材の名称、部材番号及びOA機器メーカーの名称から選ばれていることが好ましい。

【0063】これは分別した外装部材、筐体部はそれぞれ材質、形状等でその後のリサイクル・リユース処理方法が異なるからであり、上述の分類を行うことで、処理方法等が統一されている分類が可能となる。またリサイ

クル・リユース工程の途中に他の部材の混入を防止すると共に、再生処理効率を上げることが可能であり、効率的な分類を行うことができる。

【0064】このように分類した情報である第2分別結果716は第2分類の結果或いはその一部から構成されており、少なくとも各々の分類ごとの保管数量、保管日の1つから選ばれていることが好ましい。何故なら第2分別結果716としてリサイクル情報データベース713に記憶(710b)する際、各々のOA機器外装部材及び筐体部の解体処理、回収実績、リサイクル率等の情報を業界全体、機種別、メーカー別で管理することが可能となるからである。

【0065】第1分類の分別78から外装部材・筐体部解体711の工程間において、その工程なしに直接第1分類種のリユース工程を行ってもかまわない。すなわち、第1分類にリユース対象機種が指定されており、製品情報74或いはリサイクル情報データベース713により指定されたリユース対象種に分類されているOA機器においては、製品情報74或いはリサイクル情報データベース713に基づいた方法で、OA機器を処理・検査し、OA機器を再生製品、再生部品とする工程である。この工程について、図9を用いて詳しく説明する。

【0066】製品情報91或いはリサイクル情報データベース92に基づいてOA機器は第1分類への分別93が行われ、通常はOA機器の外装部材・筐体部解体94が行われ、第2分類への分別95が行われる。この際、予め製品情報91或いはリサイクル情報データベース92にリユース対象となる機種情報等などが登録されており、これらは第1分類への分別93された後、検査96a、運搬97されて、OA機器メーカー・OA機器メーカー生産工場・OA機器メーカー指定工場98に集積される。その後、製品情報91或いはリサイクル情報データベース92に基づいた方法による洗浄99及び新部品・ユニット910を用いての再組立911、検査96bを通して、再生製品・再生部品912を得ることができる。この際、検査結果や再生製品・再生部品の情報はリサイクル情報データベース92に記憶される。これにより、解体処理、回収実績、リサイクル率等の有効な情報を得ることができる。また検査工程96a、96bで不良品と判断されたOA機器においては、前述の外装部材・筐体部解体711、94、第2分類への分別715、93或いは後述する第3分類への分別734を行うことが好ましい。こうすることで、検査工程96a、96bで不良品と判断されたものにおいても、有効なリサイクル・リユースが行われ、廃棄物の排出を抑制するのに効果的である。以上の工程は、回収されたOA機器が比較的新しい場合や信頼性の高い製品であった場合などでは、解体・分別等の手間を省くことが可能であり、極めて有効な手段であるといえる。

【0067】次に第2分類で分別された第1リサイクル

・第1リユース非対象部材の処理工程について図7を用いて説明する。ここで、第1リサイクル・第1リユース非対象部材とは具体的にはOA機器のシャーシ部、内装部材等が挙げられる。複数の第1リサイクル・第1リユース非対象部材719は、製品情報74或いはリサイクル情報データベース713にある第2解体情報733を液晶パネル、モニター等の出力手段でその情報を出力(77c)し、出力した情報に基づいて、OA機器のシャーシ部、内装部材等の第1リサイクル・第1リユース非対象部材719を複数の第3分類に分別(734)する。そして、第3分類への分別結果を第3分別結果735としてリサイクル情報データベース713に記憶(710d)する工程である。

【0068】このとき、第2解体情報733にはOA機器の第1リサイクル・第1リユース非対象部材719の解体情報と、後述する第2リサイクル対象部材736及び第2リユース対象部材737のリサイクル情報及びリユース情報を備え、かつ少なくとも第2リサイクル対象部材736の材質、名称、材料メーカーの名称、部材番号、第2リユース対象部材737の名称、材質、OA機器メーカーの名称、部材番号の1つから選ばれていることが好ましい。これは第2解体情報733に第1リサイクル・第1リユース非対象部材719の解体情報と、第2リサイクル対象部材736のリサイクル情報及び第2リユース対象部材737のリユース情報を備えることで、第2分類に分類されたOA機器の第1リサイクル・第1リユース非対象部材719を解体する為の有効な情報を得ると共に第1リサイクル・第1リユース非対象部材719を解体、分別して得られた第2リサイクル対象部材736及び第2リユース対象部材737のリサイクル、リユースの為の情報を得ることができ、この情報とさらに第2リサイクル対象部材736の材質、名称、材料メーカーの名称、部材番号、第2リユース対象部材737の名称、材質、OA機器メーカーの名称、部材番号から、第3分類への分別方法、作業時の有効な情報となるからである。

【0069】また第3分類の分類方法としては、少なくとも第2リサイクル対象部材736、第2リユース対象部材737、第2リサイクル・第2リユース非対象部材738に分類されており、更に第2リサイクル対象部材736の分類は少なくとも各々の第2リサイクル対象部材の材質、材料メーカーの名称、名称及び部材番号の1つから選ばれ、第2リユース対象部材737の分類は少なくとも各々の第2リユース対象部材の材質、OA機器メーカーの名称、名称及び部材番号の1つから選ばれ、第2リサイクル・第2リユース非対象部材738の分類は少なくとも各々の第2リサイクル・第2リユース非対象部材の名称、部材番号及びOA機器メーカーの名称の1つから選ばれることが好ましい。

【0070】これは分別した第2リサイクル対象部材、

第2リユース対象部材はそれぞれ材質、形状等でその後のリサイクル・リユース処理方法が異なるからであり、上述の分類を行うことで、処理方法等が統一された分類が可能となるからである。またリサイクル・リユース工程の途中に他の部材の混入を防止すると共に、再生処理効率を上げることが可能であり、効率的な分類を行えることができる。

【0071】このように分類した情報である第3分別結果735は第3分類の結果或いはその一部から構成されており、少なくとも各々の分類ごとの保管数量、保管日の1つから選ばれていることが好ましい。何故なら第3分別結果735としてリサイクル情報データベース713に記憶(710d)する際、各々の第2リサイクル対象部材及び第2リユース対象部材の解体処理、回収実績、リサイクル率等の情報を業界全体、機種別、メーカー別で管理することが可能となるからである。

【0072】次にリサイクル対象部材処理工程について、説明する。第2分類への分別715、第3分類への分別734で分類された第1リサイクル対象部材718及び第2リサイクル対象部材736は各々のリサイクル対象部材を各々の材料メーカー728a、728bに運搬(722b、722c)し、リサイクル情報データベース713に記憶されている各々のリサイクル対象部材の再生処理729a、729bの方法で各々の再生材料731a、731bに加工し、得られた各々の再生材料731a、731bの情報をリサイクル情報データベース713に記憶する工程である。これにより、各々の再生材料の情報をリアルタイムで知ることができるため、リサイクル対象部材における運搬・回収・集積・解体・再生処理の調整・管理を行う上での重要な情報を得ることができる。またこのとき材料メーカー728a、728bに運搬(722b、722c)されてきた各々のリサイクル対象部材の数量、納入日等をリサイクル情報データベース713に記憶することが好ましい。こうすることでより正確な管理等を行うことができる。また各々のリサイクル対象部材はそれぞれの材料メーカー728a、728bに運搬・集積されるが、その間に中継地を有していてもかまわない。さらに材料メーカー728a、728bは、それぞれ、材料メーカー指定の業者、例えば中間処理業者等、或いはOA機器メーカー指定の業者であってもかまわない。

【0073】次にリユース対象部材処理工程について、説明する。第2分類への分別715、第3分類への分別734で分類された第1リユース対象部材717及び第2リユース対象部材737は各々のリユース対象部材に分類後、それぞれリサイクル情報データベース713に基づいた方法で検査721a、721cを行い、その検査結果720a、720bをリサイクル情報データベース713に記憶(710c、710e)し、リユース対象部材の検査合格品を各々のOA機器メーカー723

a、723bに運搬(722a、722d)する。

【0074】このとき各々のOA機器メーカー723a、723bの運搬(722a、722d)前の検査721a、721cは省略されても構わない。何故なら、検査は後述の再組立後に行なわれ、場合によっては運搬前の検査721a、721cを省略することで、工程能力を向上させることが可能であり、かつリサイクルシステムコストを低減することができるからである。

【0075】OA機器メーカー723a、723bの運搬(722a、722d)後、各々のリユース対象部材をリサイクル情報データベース713に記憶されている方法で各々のリユース対象部材の洗浄・再組立724a、724bを行い、更にリサイクル情報データベース713に記憶されている方法による検査721b、721dを行い、再製品・再部品726a、726bを得る。このとき得られた各々の再製品・再部品726a、726bの情報をリサイクル情報データベース713に記憶する。また洗浄・再組立724a、724bにおいては、場合に応じて、新品・ユニット725a、725bを供給することが好ましく、このとき供給した新品・ユニット725a、725bの供給量・在庫量等の情報供給及び情報記憶はリサイクル情報データベース713により行なわれる。これにより、各々の再製品・再部品の情報をリアルタイムで知ることができ、リユース対象部材における運搬・回収・集積・解体・再生処理の調整・管理を行う上での重要な情報を得ることができる。

【0076】またこのときOA機器メーカー723a、723bに運搬(722a、722d)されてきた各々のリユース対象部材の数量、納入日等をリサイクル情報データベース713に記憶することが好ましい。こうすることでより正確な管理等を行うことができるからである。

【0077】また各々のリユース対象部材はそれぞれのOA機器メーカー723a、723bに運搬・集積されるが、その間に中継地を有していてもかまわない。さらにOA機器メーカー723a、723bは、それぞれ、OA機器メーカー指定の業者、例えば中間処理業者或いは部品メーカー等の業者であってもかまわない。

【0078】リユース対象部材の検査工程においては、検査合格品に関しては上述の工程を経るが、検査不良品に関しては、検査不良と判断されたリユース対象部品を再度リサイクルすることが好ましい。特に第1リユース対象部材717及び第2リユース対象部材737が運搬(722a、722d)される前の検査工程で検査結果720a、720bが不良と判断されたものについては、検査不良である各々のリユース対象部材を第2リサイクル・第2リユース非対象部材として取り扱うことが好ましい。こうすることで、リユース不可能である部材の有効なリサイクルが行われ、廃棄物の排出を抑制する

ことで、より効果的なリサイクルシステムを構築することが可能となる。

【0079】次に、第2リサイクル・第2リユース非対象部材の処理方法について説明する。本来、理想的には外装部材・筐体部の分解・解体による第2分類への分別715、シャーシ部・内装部材の分解・解体による第3分類への分別734で、リサイクル対象部材とリユース対象部材とに全て分別することができることが好ましい。しかしながら、実際には分解・解体のみで分別することは現状では困難である。それは、現状の製品には金属とプラスチックの複雑な複合材料、異種プラスチックの複合材料など複雑な部材が搭載されているからである。したがって、これらの部材、すなわち第2リサイクル・第2リユース非対象部材についてのリサイクルについても考慮する必要がある。

【0080】まず、種々の分類に分類された各々の第2リサイクル・第2リユース非対象部材738を製品情報74或いはリサイクル情報データベース713にある破碎・粉砕分別情報740に基づき第2リサイクル・第2リユース非対象部材738の破碎・粉砕・分別739の情報を認識し、その認識結果を液晶パネル、モニター等の出力手段で出力する。このとき破碎・粉砕分別情報740は第2リサイクル・第2リユース非対象部材738の破碎・粉砕情報と後述の第3リサイクル対象部材742のリサイクル情報を備え、少なくとも第3リサイクル対象部材の名称、材質、材料メーカーの名称、部材番号の1つから選ばれた情報を有していることが好ましい。これは破碎・粉砕分別情報740に第2リサイクル・第2リユース非対象部材738の破碎・粉砕情報と、第3リサイクル対象部材742のリサイクル情報を備えることで、第3分類に分類されたOA機器の第2リサイクル・第2リユース非対象部材738を破碎・粉砕する為の有効な情報を得ると共に第2リサイクル・第2リユース非対象部材738を破碎・粉砕・分別して得られた第3リサイクル対象部材742のリサイクル為の情報を得ることができ、この情報とさらに第3リサイクル対象部材742の材質、名称、材料メーカーの名称、部材番号から第3リサイクル対象部材の有効な分別方法、作業時の有効な情報となるからである。

【0081】次に第2リサイクル・第2リユース非対象部材738の破碎・粉砕分別情報740を認識し、その結果を出力後、出力された結果に基づき第2リサイクル・第2リユース非対象部材738を破碎・粉砕し、これを複数の第3リサイクル対象部材742に分別し、更に破碎・粉砕・分別739した第2リサイクル・第2リユース非対象部材738の分別情報を第4分別結果741としてリサイクル情報データベース713に記憶(710f)する。

【0082】このとき第3リサイクル対象部材742の分類方法としては、少なくとも各々の第3リサイクル対

象部材の材質、材料メーカーの名称、名称及び部材番号の1つから選ばれることが好ましい。これは分別した第3リサイクル対象部材742は材質、形状等でその後のリサイクル処理方法が異なるからであり、上述の分類を行うことで、処理方法等が統一された分類が可能となるからである。またリサイクル工程の途中に他の部材の混入を防止すると共に、再生処理効率を上げることが可能であり、効率的な分類を行えることができる。

【0083】このように分類した情報である第4分別結果741は第3リサイクル対象部材742の結果或いはその一部から構成されており、少なくとも各々の分類ごとの保管数量、保管日の1つから選ばれていることが好ましい。何故なら第4分別結果741としてリサイクル情報データベース713に記憶(710f)する際、各々の第3リサイクル対象部材742の解体処理、回収実績、リサイクル率等の情報を業界全体、機種別、メーカー別で管理することが可能となるからである。

【0084】そして分別した各々の第3リサイクル対象部材742を各々の材料メーカー728cに運搬722e、集積し、集積された各々のリサイクル対象部材をリサイクル情報データベース713に基づいた処理方法729cで再生材料730cに加工し、得られた再生材料730cの情報をリサイクル情報データベース713に記憶する。これにより、各々の再生材料730cの情報をリアルタイムで知ることができるため、リサイクル対象部材における運搬・回収・集積・解体・再生処理の調整・管理を行う上での重要な情報を得ることができる。またこのとき材料メーカー728cに運搬(722e)されてきた各々のリサイクル対象部材の数量、納入日等をリサイクル情報データベース713に記憶することが好ましい。こうすることでより正確な管理等を行うことができる。また各々のリサイクル対象部材はそれぞれの材料メーカー728cに運搬・集積されるが、その間に中継地を有していてもかまわない。さらに材料メーカー728cは、それぞれ、材料メーカー指定の業者、例えば中間処理業者等、或いはOA機器メーカー指定の業者であってもかまわない。

【0085】またこれまでの工程で生じた第2リサイクル対象部材736、第3リサイクル対象部材742において、第2リサイクル対象部材736が第1リサイクル対象部材718の分類と同一の分類である場合、第2リサイクル対象部材736を第3分類の分別時に第1リサイクル対象部材718として取り扱うことが好ましく、同様に第3リサイクル対象部材742が第1リサイクル対象部材718又は第2リサイクル対象部材736の分類と同一の分類である場合、第3リサイクル対象部材742を第3リサイクル対象部材の分別時に第1リサイクル対象部材718又は第2リサイクル対象部材736として取り扱うことが好ましい。これは外装部材・筐体部の材質等が同一である部品がシャーシ部や内装部材に使

用されている場合があり、これらをリサイクル及びリユースする際の分別において、それらを統一して管理することで、無駄な分類を省くことが可能となり、リサイクルシステムコストを低減し、リサイクル効率を向上することが可能である。

【0086】ここで使用済みOA機器を解体し、第1分類、第2分類、第3分類に分別する工程のより具体的な一例について図10を用いて説明する。

【0087】第1分類に分別(1001)された使用済みOA機器1002(OA機器メーカーA製)、1003(OA機器メーカーB製)をリサイクル情報データベースより解体1009のための情報を得て、それを解体(1009)し、これを使用済みOA機器1002、1003を構成している材質A1004からなる外装部材1004a、1004b、材質B1005からなる外装部材1005a、1005b、材質C1006からなる外装部材1006a、1006b、第1リサイクル・第1リユース非対象部材1011の第2分類の分別1010をする。

【0088】次に第1リサイクル・第1リユース非対象部材1011の第3分類への分別1012を行う。このとき材質D1007からなるシャーシ部部品1007a、1007bと第2リサイクル・第2リユース非対象部材1008a、1008bからなる分類1013に第3分類に分別(1012)されるが、材質A1004からなるシャーシ部部品1004cと材質C1006からなるシャーシ部部品1006cは、第3分類の分別において、新たに分類することなく、第2分類の分別で生じた分類に存在する同一材質の第2分類種に材質A1004からなるシャーシ部部品1004cと材質C1006からなるシャーシ部部品1006cを組み込み、分別する。こうすることで無駄な分類を省くことができ、効率的な分類方法とすることができる。

【0089】さらに前記指定回収拠点はOA機器及びOA機器の解体部の状態をリサイクル情報データベースに入力するための入力手段を有してあって、少なくとも製品情報の入力工程、第2分類の分別工程、第3分類の分別工程、破碎・粉砕の分別工程の1つから選ばれる工程において、OA機器及びOA機器の解体部の状態を前記リサイクル情報データベースに入力することが好ましい。これは回収されてきたOA機器の外観、その解体後外観、更にはOA機器に内蔵されている部品、ユニットの欠損、破損状態等を各々の工程でリサイクル情報データベースに入力することで、この入力データからネットワークで接続されたOA機器メーカー等はOA機器の使用状況・実績といった製品情報を得ることが可能である。そして、OA機器及びその解体部の外観、清掃状態、外観状態等によっては、その後の分別工程後の作業に大きな効果を与えることが可能となる。具体的には入力されたOA機器及びその解体部の外観、清掃状態、外

観状態等をネットワークに接続されたOA機器メーカーが判断し、その後の処理工程を直接指示するといったことも可能となる。例えば外観の優れた部材等においては、リサイクル、リユース工程時に洗浄等の作業の省略、また損傷が激しい部品等においては、検査工程を省略して、その部品の一部の交換処理等を直接行うといった合理的な作業を行うといったことが可能となるからである。

【0090】またリサイクル情報データベースはOA機器販売業者とネットワークを介して接続されていることが好ましい。これはOA機器販売業者が新規なOA機器販売時に販売先に設置されている使用済みOA機器を回収し、リサイクル情報データベースより得られた情報から回収した使用済みOA機器を指定回収拠点また中継地に運搬・集積し、あるいは販売先の属する指定エリア内の指定された指定回収拠点または中継地に運搬・集積することが効率的に行えるからであり、さらには回収拠点・中継地の保管状況をリアルタイムで確認することができ、より効果的な保管場所への運搬が可能となるからである。

【0091】複数の指定エリアが存在する場合において、それぞれの指定エリアに指定回収拠点が存在し、各々のリサイクル情報データベースがネットワークを介して接続され、指定回収拠点、中継地、材料メーカー及びOA機器メーカーとの間にネットワークを介してリサイクル情報データベースが共有化されていることが好ましい。これは図11に示すように複数の指定エリア1101a、1101bにおいて、それぞれのエリアに存在する指定回収拠点1102a、1102b、中継地1103a、1103b、1103c、1103d、1103eがリサイクル情報データベース1104とネットワーク1108を介して接続されており、またリサイクル情報データベース1104はOA機器メーカー1105、材料メーカー1106、OA機器販売業者1107ともネットワーク1108を介して接続されている。

【0092】このように複数の指定エリアの情報を統一して管理することで、市場に流通する使用済みOA機器の実態を把握することが可能であり、また流通調整等をOA機器メーカー、材料メーカー等から行うことができ有効である。

【0093】リサイクル情報データベースは少なくとも製品情報のデータベース、第1解体情報のデータベース、第2解体情報のデータベース、第1リサイクル対象部材の処理方法のデータベース、第2リサイクル対象部材の処理方法のデータベース、第3リサイクル対象部材の処理方法のデータベース、第1リユース対象部材の処理方法のデータベース、第2リユース対象部材の処理方法のデータベース、破碎・粉砕分別情報のデータベース、第1分別結果のデータベース、第2分別結果のデータベース、第3分別結果のデータベースと第4分別結果

のデータベースから選ばれる独立した2つデータベースから構成されていても良い。

【0094】これはリサイクル情報データベースについては、第1リサイクル対象部材の処理方法のデータベース、第2リサイクル対象部材の処理方法のデータベース等の出力情報のみを扱う場合や第1分別結果のデータベース、第2分別結果のデータベース等の入力情報を扱う場合があり、リサイクル情報データベースを分割することで入力時に誤って出力専用情報を消去、変更するといった懸念を回避することが可能であり、かつセキュリティの面においても有効な手段である。

【0095】以上のOA機器のリサイクルシステムを運用するにあたり、OA機器は複数のOA機器メーカーの間で決定された指定の材質からなるOA機器部材から構成されていることが好ましい。

【0096】こうすることで、前述の解体・分別作業の負荷を低減することができシステムのコストを下げる事が可能である。また統一化された材質を用いることで再生材料の安定した需要源となり、システムの安定化を図ることが可能である。

【0097】またこれらのリサイクルシステムで発生する費用においても、その費用がリサイクル情報データベースに登録されており、この費用の課金・徴収がリサイクル情報データベースの接続されているネットワークを介して、データベース上で行われることが好ましい。これにより、費用の課金・徴収に伴うコストを削減することが可能であり、さらにリアルタイムでの費用の課金・徴収を行うことができる。

【0098】またこれらのシステムを通じて得られた有用な情報を将来、企業に求められている環境会計におけるシステムとネットワークを介して接続することも可能である。

【0099】さらに本リサイクルシステムはOA機器分野に限定しているが、他の産業分野に利用することも可能であり、将来的には公共のシステムとして廃棄物等を回収・処理する分野等に運用することが可能である。

【0100】従来、単一の企業独自のリサイクル化が行われていたが、本実施形態により、企業間の枠組みを越えた業界として地球環境保護に重要なリサイクルシステムを構築することができ、低コストで効率的なOA機器のリサイクルを可能とし、さらに製品のリサイクル率を向上することができる。さらにリサイクルシステムとして、マテリアルリサイクルに留まらず製品・部品のリユースを効率的に行うことも可能とし、更なるリサイクル率の向上を図ることが可能である。またリサイクル情報をネットワークで共有化することで、種々の情報をリアルタイムで入手することが可能となり、リサイクルシステムのコスト削減、時間短縮等の効果をあげることができる。

【0101】上記実施形態の機能を実現するためのソフト

ウェアのプログラムコードを供給し、そのシステムのコンピュータ(CPUあるいはMPU)に格納されたプログラムに従って動作させることによって実施したものも、本発明の範疇に含まれる。

【0102】この場合、上記ソフトウェアのプログラムコード自体が上述した実施形態の機能を実現することになり、そのプログラムコード自体、およびそのプログラムコードをコンピュータに供給するための手段、例えばかかるプログラムコードを格納した記録媒体は本発明を構成する。かかるプログラムコードを記憶する記録媒体としては、例えばフロッピー(登録商標)ディスク、ハードディスク、光ディスク、光磁気ディスク、CD-ROM、磁気テープ、不揮発性のメモ리카ード、ROM等を用いることができる。

【0103】なお、上記実施形態は、何れも本発明を実施するにあたっての具体化のほんの一例を示したものに過ぎず、これらによって本発明の技術的範囲が限定的に解釈されてはならないものである。すなわち、本発明はその技術思想、またはその主要な特徴から逸脱することなく、様々な形で実施することができる。

【0104】

【発明の効果】以上説明したように本発明によれば、企業間の枠組みを越えた業界として地球環境保護に重要なリサイクルシステムを構築することができ、低コストで効率的な機器のリサイクルを可能とし、さらに機器のリサイクル率を向上することができる。

【図面の簡単な説明】

【図1】従来のOA機器メーカーによるリサイクルシステムの一例を挙げた図である。

【図2】本発明の第1の実施形態のOA機器メーカーによるリサイクルシステムの一例を示す図である。

【図3】本実施形態のOA機器ユーザーから指定回収拠点までの回収工程において、中継地経由する場合の一例を示した図である。

【図4】本実施形態の第1の製品情報をOA機器回収解体情報データベースと照合し、その結果を第2の製品情報としてOA機器回収解体情報に記憶する工程の一例を示した図である。

【図5】本実施形態のOA機器外装部材をOA機器回収解体情報データベースに基づき解体し、第2の分類に分別する具体の一例を挙げた図である。

【図6】本実施形態の複数の指定エリアを有する場合のネットワーク接続化の一例を挙げた図である。

【図7】本発明の第2の実施形態のOA機器メーカーによるリサイクルシステムの一例を示した図である。

【図8】本実施形態の製品情報をリサイクル情報データベースと照合し、その結果を第1分別結果としてリサイクル情報データベースに記憶する工程の一例を示した図である。

【図9】本実施形態の第1分類において、直接製品のリ

ユースの工程を行う場合の一例を示した図である。

【図10】本実施形態の第1分類、第2分類、第3分類に分別する具体的一例を挙げた図である。

【図11】本実施形態の複数の指定エリアを有する場合のネットワーク接続化の一例を挙げた図である。

【符号の説明】

11a、11b、11c、21a、21b、21c、32a、32b、32c、32d、32e、71a、71b、71c OA機器ユーザー
12a、12b、12c OA機器販売
13、14、15 使用済みOA機器の回収
16、220a、220b、517、518、65、723a、723b、1105 OA機器メーカー
17、18、51、52、1002、1003 使用済みOA機器
19 リサイクル
110 廃却処分
22、33a、33b、33c、33d、33e、33f、33g、33h、33i、72 回収・運搬・集積
23、35、62a、62b、73、1102a、1102b 指定回収拠点
24、44 第1の製品情報
25、42、75、82 入力及び入力手段
26、45、76、85 照合
27、213、224a、224b、224c、49、513、710a、710b、710c、710d、710e、710f、89 記憶
28、410 第2の製品情報
29、48、78、88、93、1001 第1分類への分別
210 認識
211、59、510 解体処理外装部材情報及び非解体処理部材情報
212、58、77a、77b、77c 出力及び出力手段
214、511、732 解体
215、225a、225b、226a、226b、226c、714、727a、727b、731a、731b、731c データベース端末
216、512、715、95、1010 第2分類への分別
217 非解体処理部材の運搬・集積
218 解体処理外装部材の運搬・集積
219、43、57、64 OA機器回収解体情報データベース
221a、221b、221c、514、515、516、66、728a、728b、728c、1014、1015、1016、1017、1107 材料メーカー
222a、222b、222c、729a、729b、

729c 再生処理
223a、223b、223c、730a、730b、730c 再生材料
31、61a、61b、1101a、1101b 指定エリア
34a、34b、34c、34d、63a、63b、63c、63d、63e、1103a、1103b、1103c、1103d、1103e 中継地
41、81 情報記録手段を配した使用済みOA機器
46a、46b、46c、86a、86b、86c データベース内情報
47、87 照合結果（照合後の第1の製品情報及び照合後の製品情報）
53a、53b 非解体処理部材
54 解体処理外装部材の材質A
55 解体処理外装部材の材質B
56 解体処理外装部材の材質C
67、1107 OA機器販売業者
68、1108 ネットワーク
74、84、91 製品情報
79、810 第1分別結果
711、94、1009 外装部材・筐体部解体
712 第1解体情報
713、83、92、1104 リサイクル情報データベース
716 第2分別結果
717 第1リユース対象部材
718 第1リサイクル対象部材
719、1101 第1リサイクル・第1リユース非対象部材
720a、720b 検査結果
721a、721b、721c、721d、96a、96b 検査
722a、722b、722c、722d、722e、97 運搬
724a、724b、99、911 洗浄・再組立
725a、725b、910 新部品・ユニット
726a、726b、912 再（生）製品・再（生）部品
733 第2解体情報
734、1012 第3分類への分別
735 第3分別結果
736 第2リサイクル対象部材
737 第2リユース対象部材
738、1008a、1008b、1013 第2リサイクル・第2リユース非対象部材
739 破碎・粉碎・分別
740 破碎・粉碎・分別情報
741 第4分別結果
742 第3リサイクル対象部材

98 OA機器メーカー、OA機器メーカー生産工場、
OA機器メーカー指定場所

1004 材質A

1004a、1004b 材質Aからなる外装部材

1004c 材質Aからなるシャーシ部部品

1005 材質B

1005a、1005b 材質Bからなる外装部材 *

* 1006 材質C

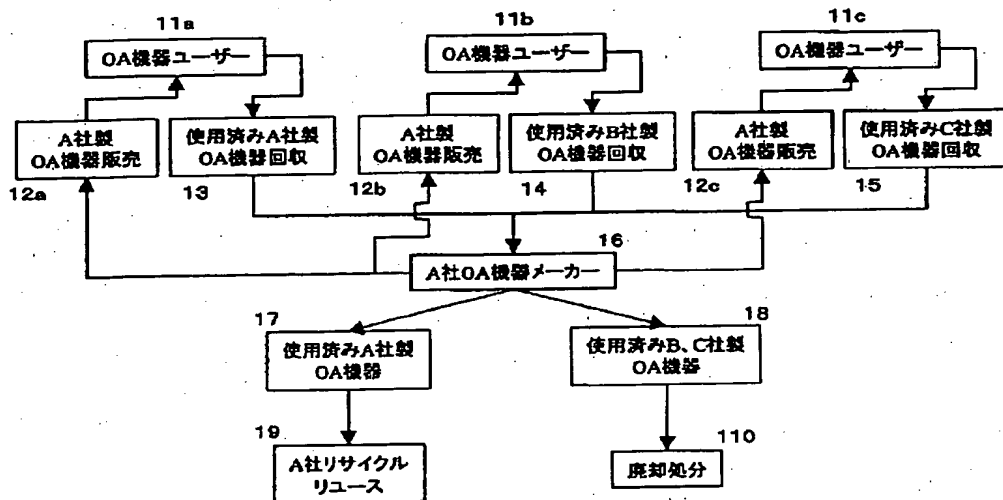
1006a、1006b 材質Cからなる外装部材

1006c 材質Cからなるシャーシ部部品

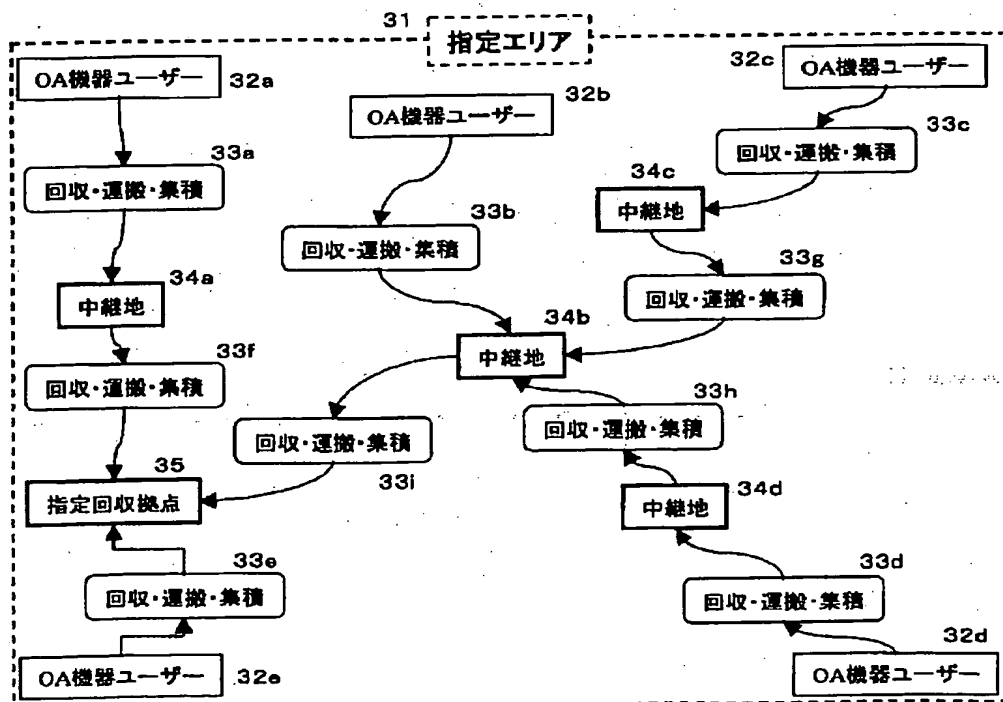
1007 材質D

1007a、1007b 材質Dからなるシャーシ部
品

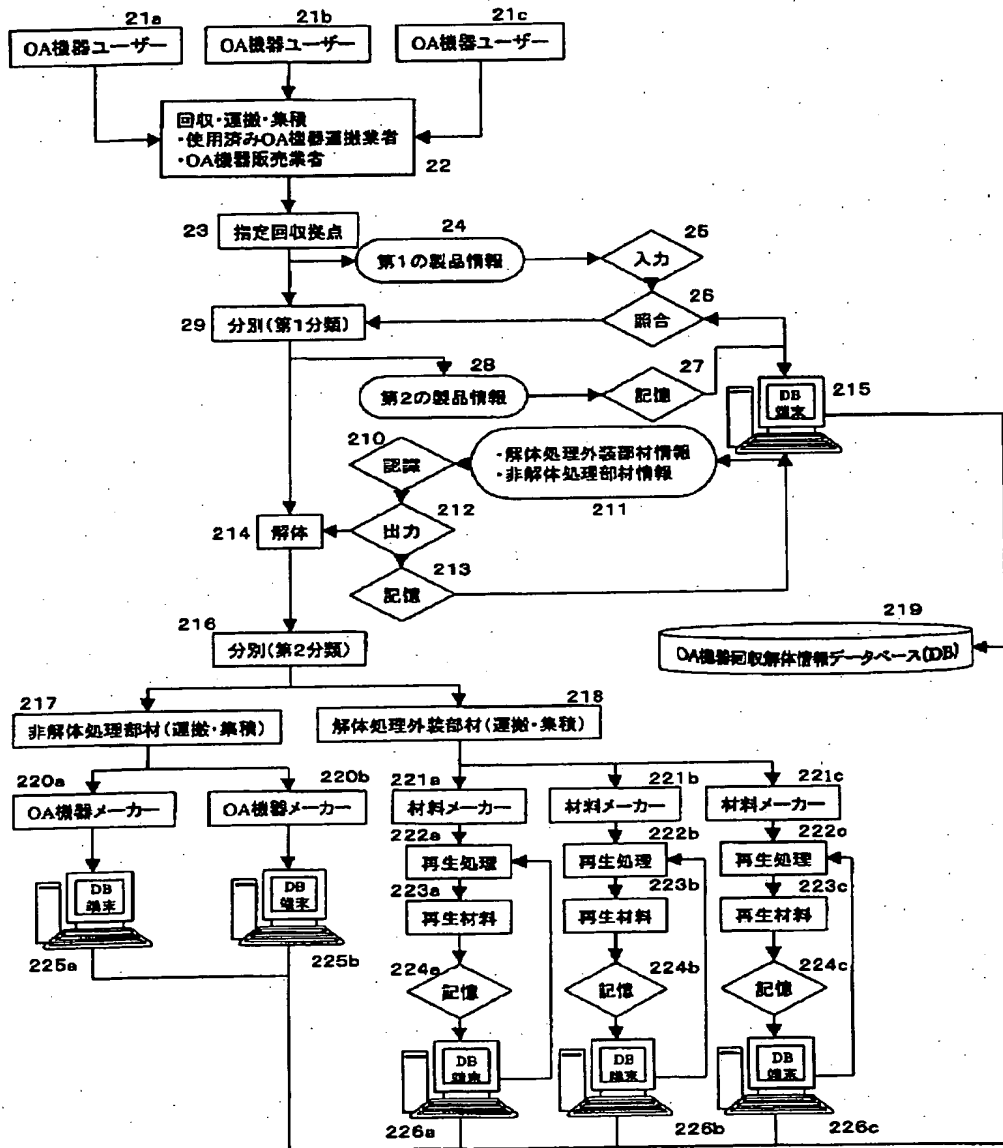
【図1】



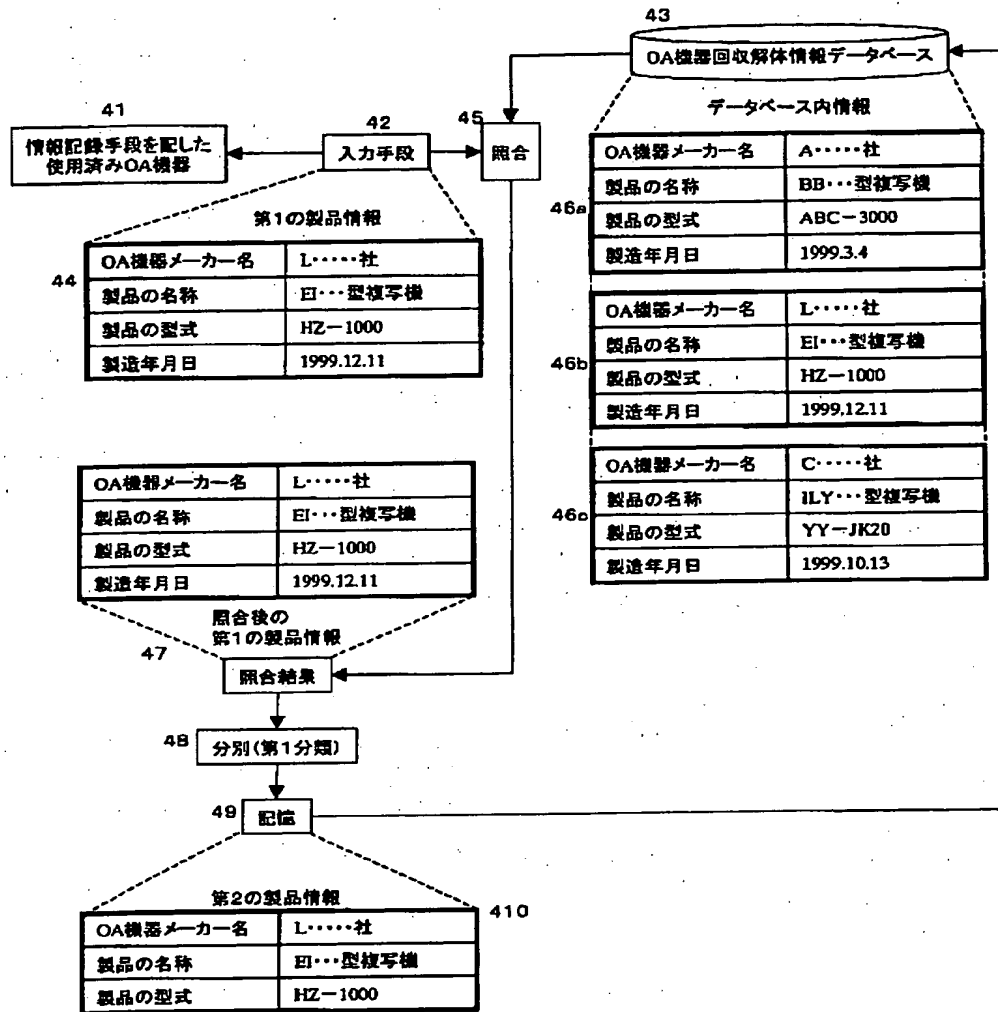
【図3】



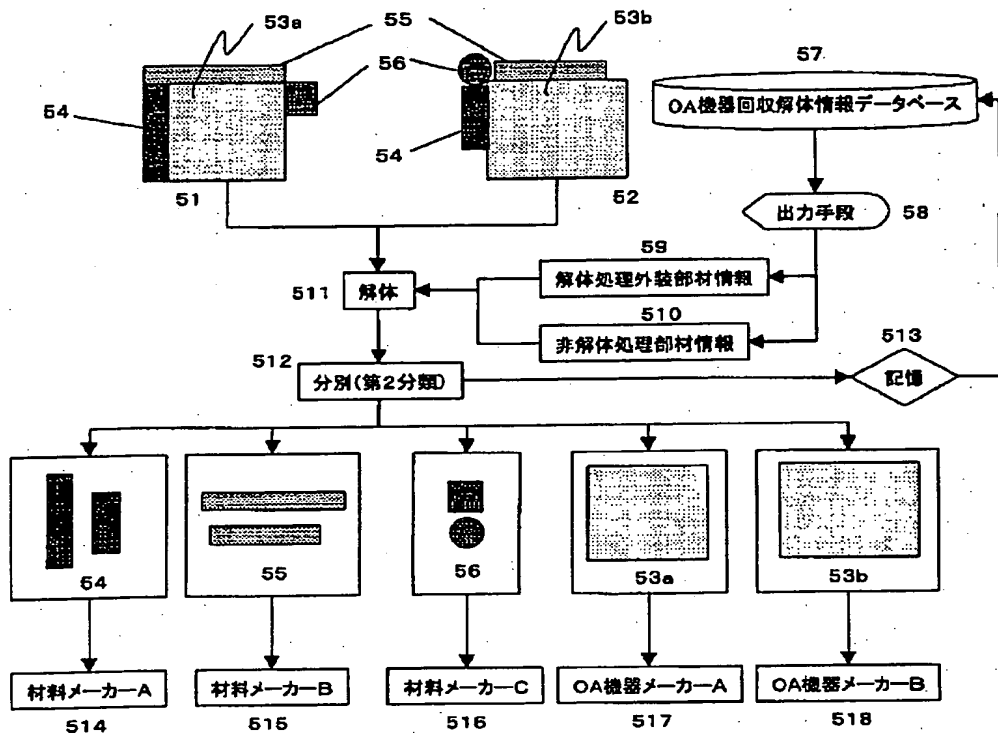
【図2】



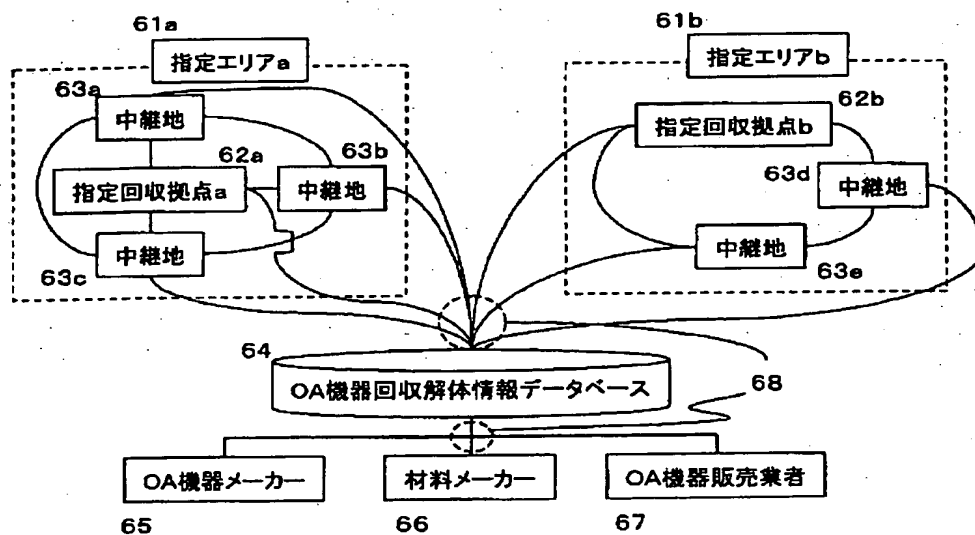
【図4】



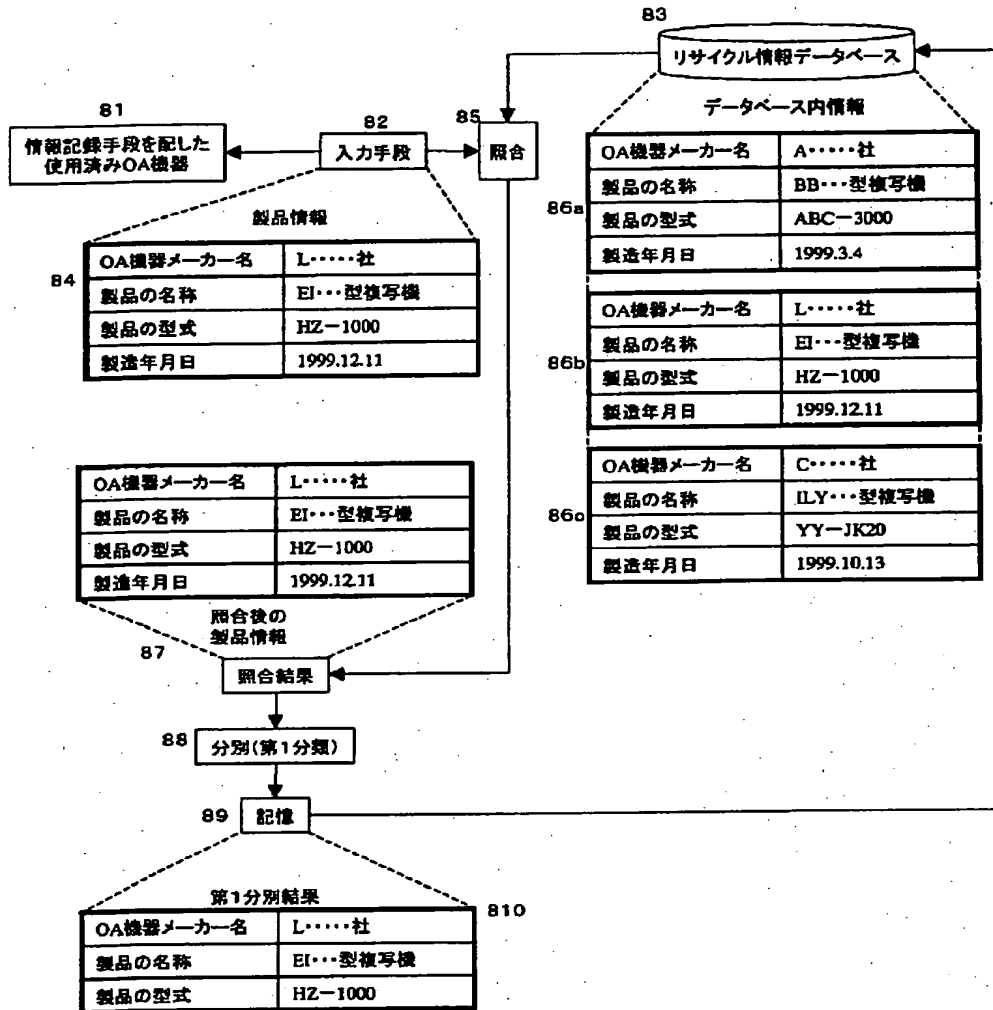
【図5】



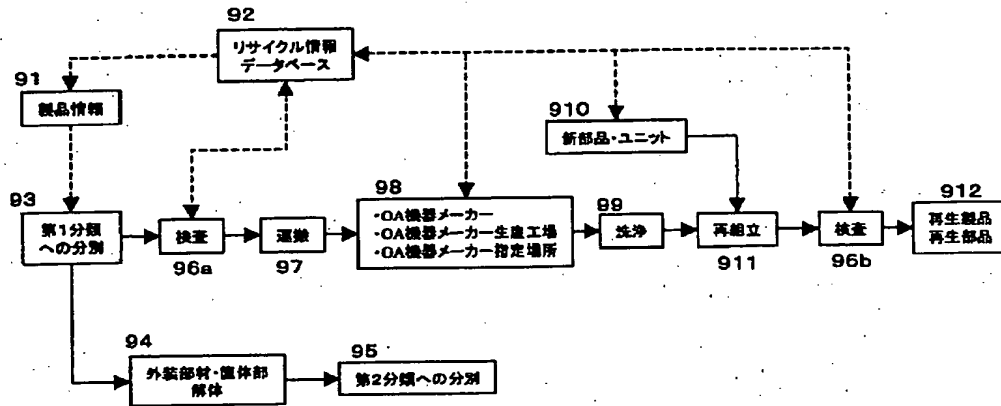
【図6】



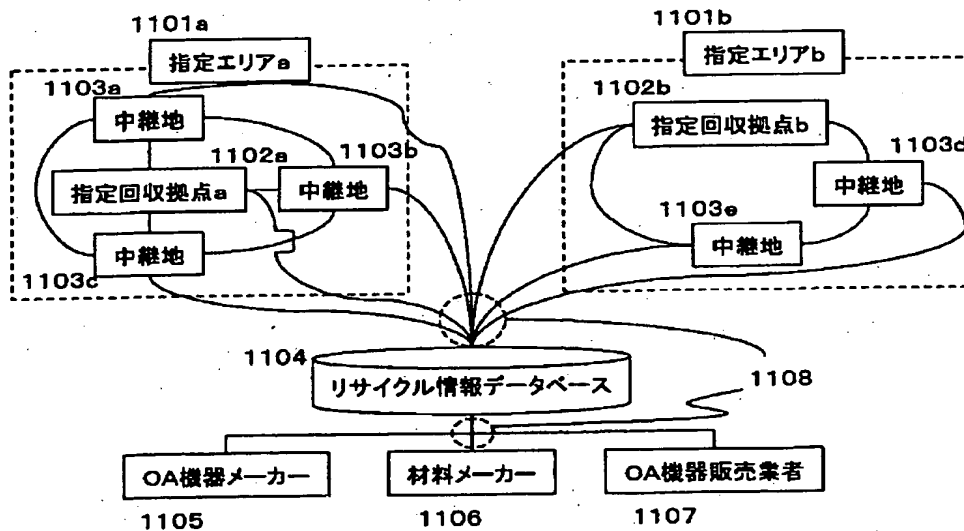
【図8】



【図9】



【図11】



【図10】

